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NOTE ON PURPURA HÆMORRHAGICA.

BY PROFESSOR LIMONT, GLASGOW VETERINARY COLLEGE.

WITHIN the last year or two I have seen three thoroughly well-marked cases of Purpura Hæmorrhagica in the horse, and in all three cases I have examined the blood of the living animals in search of organisms. In No. 1, I *once* took by puncture (with ordinary precautions against contamination from the skin) blood, or rather exudate, from a swollen part; and at the same time blood from a part not swollen. In No. 2, I *twice*, with an interval of a day or two, took blood in the same way from a part not swollen. In No. 3, I *thrice* took blood at intervals of a day or two—the first time by puncture from a swollen part, the second time in the same way from a part not swollen, and the third time by tapping the jugular vein with a purified hollow needle taken from the little syringe used for subcutaneous injection in human practice. This needle method answered well in the case of the horse, but Mr. Dawson and I afterwards ignominiously failed when we tried to tackle a bull-calf. Of course the needle was first well tested, and then carefully used.

Every slide made from these specimens showed countless *cocci*—minute, spherical or nearly spherical, generally single or in pairs. They were stained by all the aniline dyes used, but were, perhaps, best shown by the Gram method:—Cocci red (rosaniline hydrochloride) against leucocytes stained blue or green. As to their nature, cocci or coccus forms may be "micrococci," or "bacteria," or "bacilli," according to the classification of Cohn. I have seen nothing to lead me to think that they may not be all, or *nearly all* "micrococci," and in some slides (including one at least of the four made from the blood of the jugular vein), a $\frac{1}{12}$th oil-immersion seemed to bring out capsules around some of them.

I cannot say much about the tissues. In No. 1 case I arrived at the stable soon after the death of the animal, but had only time to cut out bits of the greatly swollen lip and eyelid. These were at once put into spirit and hardened. Sections of both, stained with anilines after the Gram method, show veins crammed with leucocytes, plenty of migrant leucocytes, and at least (and undoubtedly) three kinds of organisms. These are, (1) *Minute cocci*, apparently the same as those in the blood drawn from the living animal; (2) *Large cocci* (*Streptococcus pyogenes*?), single, in pairs, or in rather long chains; (3) *Rods* of various lengths, but always slender, sometimes in pairs united at an angle. These beautiful "bacilli" can be seen in the lumen of rather large vessels, in their walls, and altogether outside in the connective tissue. In cases No. 2 and No. 3 I had no opportunity of examining the tissues. The former died on a hot autumn day devoted to a serious operation upon my brother. The latter recovered. On one occasion I saw this animal vomit liquid about a dozen times within a few minutes. The vomit was ejected by the nose, except once, when a little came by the mouth. It seemed to be easily driven up by contraction of the stomach alone, or perhaps of the stomach and diaphragm. On that evening his legs and belly were much swollen, and there was a good deal of rumbling and gurgling going on inside. My colleague, Professor McQueen, aptly likened the vomiting to "water-brash" in man. As I have said, the horse recovered.

Little can be inferred from these microscopical observations, except that Purpura Hæmorrhagica is worth looking into. Its etiology can hardly be worked out except by the staff of a modern bacteriological laboratory, working with skilled veterinary aid in the clinical part of the work. I lay emphasis on the latter, and not without reason in view of the weak points in some recent researches.

As regards the tissues examined. They were of course unhealthy, and lying below unhealthy mucous membranes. Granted that a specific organism started their unhealthy condition; later, indifferent organisms would be pretty sure to penetrate. As a matter of fact, I find at least three kinds, and can say nothing about the *rôle* of any of them. As regards the blood—to simplify things, say the unmixed blood got from the jugular vein. Granted that a specific organism started its unhealthy condition, and granted that there is only one kind in it, it does not follow that this one is the specific organism. The specific organism, if it ever existed in the blood, may have disappeared from it to give place to an indifferent organism that invades the blood made unhealthy by the specific or pathogenic organism. In the *British Medical Journal* of June 11

there is the report of the Edinburgh investigation into the etiology of Scarlet Fever, an article of considerable interest to the veterinary profession. It is worth reading, if only to show how an apparently specific organism may disappear from the blood, leaving it a fitting *habitat* for another, and perhaps indifferent, organism. And again, it is well enough known that more than one organism may exist in the blood, as well as in the tissues.

It is possible that the blood in Purpura Hæmorrhagica is made unhealthy, and a *habitat* for indifferent organisms, by chemical poisons from without or within. But I strongly suspect that this disease will yet suffer the fate of Tubercle and Anthrax and many another. It may turn out to be a well-known disease in some other animal.

ON THE THEORY OF LARYNGISMUS PARALYTICUS.

BY R. SPOONER HART, M.R.C.V.S., CALCUTTA.

Apropos of the editorial in the VETERINARY JOURNAL for April last upon "Ormonde" and his having turned roarer, and the theory as to its cause, I beg to be permitted to express my view upon the subject, and one which I have held since 1870. It is that Roaring (*Laryngismus paralyticus*) is the result, in the majority of cases, of exalted body temperature, such as occurs in the hunter and race-horse during training and galloping, and in the class of cases known as Thermic Fever, or so-called *coup de soleil*, in which the temperature often runs so high that the ordinary thermometer is useless to register it. Laryngismus paralyticus and paralysis behind, or "gone in the loins," are the common *sequelæ* of such attacks. In training, the horse is galloped day after day in heavy clothing and sweated, and as he strides along the current of air cannot play on his skin, the body temperature is shut in, and so accumulating runs very high. This, repeated time after time, damages the nervous system. The heat-governors, or centres wherein lie the temperature-controlling power, become damaged and weakened, and consequently the temperature of the body rises higher than it would do if this damage did not exist. This high temperature is paralysing in its effects. Let us take a case of Thermic Fever, or so-called sunstroke in the horse. Patient lying in a semi-unconscious state, temperature 108 or '9, put under the cold douche, ice rubbed over the body and applied to the head, thermantidote set going. Temperature, after a time, begins to fall. Sensibility returns; patient struggles to get up, but cannot without assistance, and then has to be supported; paralysed behind, he cannot walk; the quarters roll from side to side, and it is not until some time after the temperature returns to its normal

standard that he regains the use of the hind parts, or the paralysis may permanently remain.

I repeat, Roaring and "gone in the loins" are the common results of such attacks, and should the animal immediately after not give evident signs of Roaring or loin weakness, sooner or later the one or the other (or both) will manifest itself. A patient, after an attack of such high fever, is left with his nervous system permanently damaged, and is never a horse again. The least exposure and work in the sun, his body temperature runs up like a thermometer when exposed to the sun, and he quickly falls if not taken to the shade. A certain train of symptoms remain after these attacks, and the initiated quickly recognise them. Roaring is very common in Calcutta, and here it affects the coarse and well-bred—perhaps the former more than the latter; not the result of fast work, but because his organisation cannot stand the heat. His body temperature, even when at rest, stands abnormally high, and on the smallest exertion in the sun, his body temperature rises up quickly. He never cools down, and stands and blows over his food in the stable; he is in a chronic state of fever. Very little work in the sun and he falls, registering a very high temperature. A horse of this class becomes a Roarer, and is of very little use here; it is the well-bred horse that stands our climate best.

There is another form of neurotic affection of the larynx met with here, and which corresponds with Laryngismus stridulus of the human subject; it was very common some years ago, but I have not seen a case for some time. In these attacks, to all intents and purposes, the subjects of them, in most instances, appear in good health, when, suddenly, the breathing becomes quickened and difficult, and, so increasing, goes on until the membranes become black, face deathly, cold perspirations pouring off the body, staggering, and when death looks imminent from asphyxia, relief comes, and gradually the dyspnœa passes off, and after a time the breathing becomes tranquil, and the subject remains all right till the next attack. The symptoms and character of Laryngismus stridulus in the human subject are precisely similar to this spasmodic form of Roaring in the horse, and the description given of the former in medical works will correctly convey to the reader the symptoms of the disease in the horse.

I very much regret that time will not permit my going fully into the subject, and to cite cases from my numerous records in support of the theory I have advanced.

In conclusion, I trust these few lines may be of some value, seeing that they throw light upon the causes of two obscure affections, namely, Roaring and "gone in the loins."

"SURRA," OR PROGRESSIVE PERNICIOUS ANÆMIA.

BY R. W. BURKE, M.R.C.V.S., ARMY VETERINARY DEPARTMENT, JUBBULPORE, INDIA.

Among the most important diseases in medicine are the so-called constitutional blood-disorders: Anæmia, Chlorosis, Leukæmia, and Pseudo-leukæmia—which are so little understood. Also Pernicious Anæmia, the etiology of which is still obscure. Since its discovery by Addison in 1835, and the early observations of Biermers in 1868-1872, a very great deal of information regarding its general features has been made out, but chiefly through the observations of Quinke, Eichhorst, Zenker, Immermann, Ponfick, and others. We may explain, very briefly, our present amount of knowledge with respect to its etiology, symptomatology, and *post-mortem* appearances, considered generally and specially. We recognise, in the human subject, principally two forms of Pernicious Anæmia; idiopathic or essential, and symptomatic.

The causes of the first form, which is the essential disease, are altogether unknown. In general, bad feeding and stabling, and non-hygienic conditions are the usually received causes; and, owing to this, we consider it an "infectious disease"; or it may be regarded as a constitutional disease of the blood, and of the red bone-marrow. All the cases which have come under observation have hitherto proved incurable.

The causes of the second form are better known. This form is caused by a certain blood-sucking intestinal worm, principally the the *Ankylostomum* (*Dochmius*) *duodenale* and *Botriocephalus latus*. This was first pointed out by Perroncito, in 1880, to be the cause of progressive Pernicious Anæmia among workmen and others. This form of Anæmia is to an extent curable. The disease was described for the first time in India under the name of "Surra" as occurring commonly in horses, mules, and camels, by Inspecting Veterinary Surgeon G. Evans, M.D., of the Army Veterinary Department, who noted the presence of a parasite in all the diseased animals examined, and in others subjected to experimental inoculations. The nature of the parasite, and its exact pathological significance, are points which Dr. Evans did not satisfactorily clear up; although the suggestion subsequently made by Veterinary Surgeon Steel, that it was a spirillum, would not be accepted by him, who maintained that, whatever it might be, it was not a member of the family of bacteria. Dr. Edgar M. Crookshank (*Journ. Micr. Soc., Ser. 2, Vol. VI*, 1886), who carefully studied the parasite in "Surra" blood, agrees with Dr. Evans in considering it to be *not* a spirillum, and proposes to name it after its discoverer, *trichomonas Evansi*. Professor Osler terms it *hæmato-*

monas Evansi. (*Brit. Med. Journ., 12th March,* 1887). But the relation of this parasite to the disease has remained an unsettled question. I may add that parasites were discovered in perfectly normal blood, and many years ago. I will mention the names of a few observers only, namely, Delafond and Gruby (*Recueil de Med. Veterinaire,* 1843, 1844, 1851), Serres (*Journal du Midi,* 1854), Krabbe (*Repertorium der Thierheilkunde,* 1871), De Silvestri (*Il Med. Veterinario,* 1871), and, three years later, Lewis (*The Pathological Significance of Nematode Hæmatozoa,* 1874). Some interesting papers may be consulted on this subject also in *Giornale di Pisa,* 1877, and in the *Deutsche Zeitschrift für Thiermedicin u. vergl. Pathologie,* 1882, and elsewhere.*

The remarkable tendency of the blood to harbour parasites has been a matter of not recent observation. Their characteristic features manifest a disposition to augment in numbers under any shock or depression of the system. Sometimes, prolonged exposure to malarious and ill-sanitary influence, debilitating effects from impaired nutrition, from hyperpyrexia, etc., issues in a morbid alteration of the blood peculiarly fitted for the growth and multiplication of these organisms; but, even when no change in the surroundings of the animal is discoverable, a deep impression is often stamped upon the system, leading to their increase. In a recent inquiry it has been shown that these organisms are to be found in no less than 25 per cent. of apparently healthy animals.

These parasites are usually classed as filaria, and they do not seem to excite any disease when in moderate numbers. In other cases, Apoplexy may result from embolism of the heart and closure of the valves; and also the embryos appear to cause Apoplexy by blocking up the capillaries of the brain. Besides this they may cause epileptiform convulsions and Anæmia and wasting; also hæmorrhages into the lungs and skin, and varied symptoms.

In all kinds of animals, then, this parasite must exist, ready to resume its active form whenever the conditions of climate, of weakness, and ill-health present themselves afresh. Without doubt, the parasites which are the cause of this disease are widely prevalent, and exist in the blood of most animals, but attenuated; and in this state an animal may harbour them in its blood, without showing much, if any illness. They only become dangerous when, through over-crowding and other causes, in bodies enfeebled by disease, their virulence becomes exaggerated. Under weakened states of the body, as in "Surra," doubtless the parasites multiply rapidly, and even assume pathogenic properties. See, in this connection, a remarkable case of "Filaria Immitis in the Heart of a Dog," in

* See a paper on this subject entitled "Parasites in Normal Blood," in the VETERINARY JOURNAL for January, 1887.

the VETERINARY JOURNAL, *December*, 1881. We have here a case where the parasites *became* pathogenic, and too much stress must not be laid on the pathogenic properties of the somewhat similar organisms found in "Surra." There is strong evidence in favour of the belief that the parasites assume pathogenic properties under favourable conditions; but it should also be stated that the parasite in "Surra" has never been isolated apart from the blood, and the disease then produced by inoculating healthy animals with it. It is most probable, therefore, that the parasites in "Surra" are only associated with the disease, the impoverished blood affording a suitable nidus for their development.

Pathology.—Zschokke first described this disease in the *Scheweizer Archiv für Thierheilkunde, Bd.* 25, 1885, under the name of Pernicious Anæmia of the horse, and also noted the presence of spiral organisms in the blood, the same as those observed by Klebs and Frankenhauser in the human subject. The presence of these organisms, he considers, accounts for the infectiousness of the disease. Fröhner also saw organisms in the blood of the horse between the red corpuscles: they were from $\frac{1}{3}$ to $\frac{1}{2}$ the size of a red blood corpuscle, but were not quite so thick. Fröhner found them usually grouped together in fours and sixes (*Archiv für Wissen und Praktische Thierheilkunde, Band XII*, 5 *u.* 6 *Heft*, 1886). M. Netter shows that the parasites pass up the bile ducts, penetrate their coats, and thence pass into the blood (*Archives de Medicine*, 1884). The common people in Germany believe this disease to be in some way connected with a non-hygienic state of the stables. Veterinary surgeons of the army, on the continent of Europe, have generally described it under the head of lung disorders of an infectious type. Until my own observations were published (*Supplement to Report on Remittent Anthrax, 5th March*, 1887), veterinarians in India have treated of it under different names, as "Surra," Relapsing Fever, etc., according as it suited the fancy of different writers.

Other animals, besides the horse, have been known to suffer from the disease. Mégnin describes a symptomatic type of this disease seen in dogs and cats, which was caused by an ankylostome producing Anæmia, and which is, without doubt, similar disease to the symptomatic form of Anæmia in man. Johne saw this disease in the dog as a secondary affection following a suppurative form of disease. Imminger has observed enzootic outbreaks of it in cattle. Fröhner describes having only recently seen cases of this disease in the horse, and Friedberger also saw an outbreak of it in the same animal. The cases described by Dieckerhoff, under the name of "Scalma," are undoubtedly the same disease. The latter author mentions nine cases which, although of a milder

nature, showed symptoms allied to those of Pernicious Anæmia. Dieckerhoff considered it infectious.

Etiology.—Dr. Ponfick's experiments show that Pernicious Anæmia may be experimentally produced in dogs and rabbits by administering blood-dissolving agents to them for some weeks, but especially glycerine, pyrogallic acid, etc., which always produced a state of lethargy and extreme weakness in these animals, the mucous membranes becoming pale and anæmic, the action of the heart very irregular, with blowing sounds heard on auscultation of the latter organ, the pulse also weak, and the temperature raised. The excrements were sometimes mixed with blood. A microscopic examination of the blood showed a pretty normal condition of things in the first week; from the third to the fourth week the blood became pale and watery, with an excess of white cells in it. On dissection of the body, marked Anæmia was found, with fatty degeneration of the muscles of the heart, of the intima of the veins, the liver, and kidneys; and blood-vascular extravasations in internal organs, but principally in serous membranes, in the lungs, the brain, the spinal marrow, subcutis, etc.

Professor Ponfick thinks that the blood-dissolving agents cause separation of the hæmoglobin from the red blood-corpuscles, leading to marked disturbances in the relative proportion of the blood constituents. The leucocytosis, which is a marked feature of Pernicious Anæmia, is also characteristic of Hæmoglobinuria, and which in acute and subacute cases is always present. An excess of free hœmoglobin in the spleen, liver, and kidneys may probably be a cause of swelling of these organs seen in this disease. The continued loss of hœmoglobin from the blood interferes with the formation of new blood in a very serious manner. The author has proved by further examinations that free hœmoglobin in the blood destroys the white cells and promotes the growth of fibrin ferments. Large quantities of these ferments cause a marked disturbance of the circulation, the blood flows slower than under normal conditions, which necessarily interferes with the proper function of the blood-forming organs. The body becomes poorer and poorer through the large numbers of the red blood-corpuscles becoming destroyed in this disease, and through loss of hæmoglobin and oxygen: which cause defective nutrition leading to excessive deposition of fat in the principal organs of the body, and which is the cause again of hœmorrhages in different organs (*Berliner Klinischen Wochenschrift, Nors.* 29 *and* 30, 1886).

One cannot refrain from pointing out the very meagre evidence we possess, in the face of these experiments, with regard to the share taken by the parasites met with in the blood of Surra. The

results of these experiments at once suggest to our mind an explanation with regard to the numerical increase of the parasites as a consequence of impoverished blood in this disease.

Dr. Crookshank states that the closest examination has confirmed his belief "that the parasites found in the blood of healthy rats are morphologically identical with the stained parasites of Surra." Dr. Evans noted the presence of filaria of different species in the blood of diseased as well as healthy camels (VETERINARY JOURNAL, *July*, 1881, *p.* 10), and Crookshank notes the same fact in the case of filaria found in the blood of rats. Since all observations prove the existence of filaria of different species in the blood to be compatible with health, we have no reason for wonder when we find them greatly increased during disease.

It should be further stated, as Dr. Crookshank points out, that the organism has never been isolated apart from the blood in Surra, and the disease then produced by inoculation of healthy animals—a point of considerable moment in the etiology of this disease.

Symptoms.—The appearances during life are principally those of a general loss of blood, indicated by Anæmia of mucous membranes, languor, dyspnœa, a weak and readily excitable pulse, palpitation of the heart, and fever. There is increasing debility, with little or no loss of appetite. In spite of a greedy appetite, debility appears, progressive in character. Dropsical swellings usually occur towards the latter stages of the disease. The malady is usually progressive, seldom acute in character. The course is prolonged to several, usually six to eight weeks.

With regard to the fever accompanying this disease, Mr. Steel has noted an unlimited number of remissions on the fourth and fifth days usually, which he mistook for the remissions seen in Relapsing Fever. Zschokke has shown that the fever accompanying these cases is of an intermittent (*quartan*) type. Fröhner has likewise noted a marked rise in temperature on the fourth day, which, with slight remissions, remained high till death. Fröhner also saw partial paralysis, or an increasing weakness of the hinder quarters in horses the subject of this disease, a symptom which was often observed in the Burmah outbreak. Zschokke mentions Jaundice as another frequent symptom in the horse, as well as enlargement of the lymphatic glands and punctiform extravasations —symptoms commonly noted in Surra in India. The urine is albuminous in character, and of an acid reaction.

Post-mortem Appearances.—On dissection, a general Anæmia, together with fatty metamorphosis, unattended by other changes, is noted. Frequently, though not always, hœmorrhages take place more or less in all the organs, but principally in the serous mem-

branes, the muscles, the retina, and the larger glands. The spleen and liver are sometimes swollen, and contain thrombi in the larger vessels. The marrow in the bones appears altered in character, and presents a jelly-like aspect, containing innumerable granular blood-corpuscles. The liver and other organs contain an excess of iron-salt. The true pathological cause is to be found in the blood; the red blood-corpuscles are decreased in number and altered in shape, size, and aspect, frequently presenting a markedly serrated outline. Nodular blood particles are also to be seen in the blood. In short, the blood is in a state of complete disorganisation.

Zschokke states that none of the principal organs show any marked structural change. Besides Anæmia, he has noted hœmorrhages under the serous membranes, swelling of the liver and spleen, loss of striæ in the muscular fibres of the heart, blood extravasations in the marrow of bones, and a decrease in the number of red corpuscles in the blood, the same as in Pernicious Anæmia in man. He also noted the presence of spiral organisms in the blood.

Mr. Oliphant, Principal Veterinary Surgeon in India, in his D. O. dated 12th February, 1887, writes: "In one outbreak of Surra in the 18th Bengal Cavalry, in which 180 horses died, I made dozens of *post-mortem* examinations, and the appearances in all were identical—extreme pallidity of all the tissues, with perhaps a trifling serous effusion into the abdomen, etc. In fact, the animals looked as if they had been starved to death." Dr. Evans was also most careful in pointing out that absence of any marked structural changes was peculiar of Surra (VETERINARY JOURNAL, *July*, 1881, *p.* 6). The other symptoms, such as the adipose degeneration of the liver, spleen, heart, and other organs, the general hæmorrhagic diathesis, etc., may be regarded as secondary in origin.

Diagnosis.—The marked anæmic conditions, observed both *ante-* and *post-mortem*, the leucocytosis, fatty degeneration of the muscles, liver, spleen, kidneys, and other organs, the general hæmorrhages, and the chronic state of fever, which end in death in so many cases, leave no doubt as to the nature of the disease.

Treatment.—In all forms of serious Anæmia, authors have always attached the greatest importance to treatment by arsenic; and in a recent paper by Professor Osler, in the *Therapeutic Gazette*, he states that in all cases of pernicious or essential Anæmia there was no one case of recovery in which arsenic did not form the basis of treatment. It is not, however, a specific. Iron is only occasionally useful in these cases. Mr. Steel also mentions these remedies in the treatment of "Surra," although he met with no greater success

than usually follows their use in Pernicious Anæmia in man. Exercise would appear to be more favourable to recovery in these cases than absolute rest. Change of climate has been found occasionally useful, both in the case of man and in that of the lower animals. And Sir Joseph Fayrer—who even suggests that "beriberi" in man is probably one form of Pernicious Anæmia—thinks that a hilly climate is particularly suitable for the less advanced cases, although he admits its efficacy in more prolonged cases to be somewhat doubtful, if not altogether *nil.*

The whole subject of parasites and parasitism in equine medicine is one which has yet to be studied completely; but, as a clinical observer, I believe that I can recognise in Surra a pathological state which has a curious relation to Pernicious Anæmia in man, which I have endeavoured to bring out in this paper for the benefit of English-speaking veterinarians in India in particular, and to associate it with that disease of the lower animals long since recognised by veterinarians on the Continent of Europe, but especially by Mégnin, Johne, Imminger, Zschokke, Friedberger, Fröhner, and others.

DISLOCATION OF THE SHOULDER IN THE HORSE.

BY NOBLE SMITH, F.R.C.S. ED., LONDON.

I FIND that the account I sent of this case has excited some interest, and, therefore, few further remarks may perhaps be worth recording.

I have heard of several other instances of this accident. In some the horses were shot: in three the dislocation was reduced with much trouble, and the animals were unfit for work for the next six months. I am told that reduction has been effected in some cases by taking the horses into water and making them swim. This, to say the least, is not a very scientific proceeding, and I should think it probable that the displacement must have been but partial, when such a course was practicable. In complete dislocation muscular action could hardly do otherwise than increase the displacement.

I have received a very interesting communication from my friend, Mr. Abraham, lately Member of the Court of Examiners, and Curator of the Museum of the Royal College of Surgeons of Ireland. It is a reprint from a paper which he sent to Transactions of the Academy in Ireland. He refers to several recorded cases of this accident, and to one which occurred in his own experience.

In the latter instance the horse fell against a bank, in a somewhat similar manner as in my own case. "There was little apparent shortening of the limb, very slight turning in of the toe, and the animal seemed able to rest some weight upon the leg." The horse was "fearfully lame." The weight of opinion was that one of the shoulder muscles had been ruptured and that no dislocation existed. A blister was applied, and after a time a leather shield was tightly strapped over the prominence.

The horse died ten weeks after from Tetanus, and at the *post-mortem* examination the humerus was found to be "dislocated upon the dorsum of the scapula, *i.e.*, the head of the bone had been forced outwards and upwards. . . . . Rather more than an inch of the outer edge of the glanoid cavity had been broken off and pushed up," and was anchylosed on the neck of the scapula in the line of the spine. The humerus was anchylosed to the scapula in its abnormal position. The horse had travelled three miles to the station and been brought to Dublin before being seen by the veterinary surgeons, and therefore the parts were doubtless much swollen. This fact, coupled with the rarity of the accident, may account for the error in diagnosis.

This history seems to me a valuable support to my contention that when a severe injury has happened no movement of the animal should be allowed before it is scientifically examined, and, in the case of dislocation, reduction effected. The sequel to my case is as follows:—

On the seventeenth day after the accident the mare was put in harness and trotted round Regent's Park. I have used her six days in each week since, and she has gone perfectly sound. Less than six weeks after the accident I rode her across a ditch about six feet wide, and she showed no bad effects after the effort. Once or twice before this jump, and once since, she has made a slight stumble while trotting in the saddle on rough ground.

UNUSUAL RESULTS OF CASTRATION.

BY V.S. GERALD H. FENTON, F.R.P.S., ARMY VETERINARY DEPARTMENT, KAMPTEE, INDIA.

FROM the peculiar circumstances which have occurred during the past three months in the cases of some recently castrated horses, I am induced to record the same, never having experienced these conditions in my practice before. These cases happened in the 4th "P.W.O." Madras Light Cavalry, amongst the Persian remounts, 145 of which have been castrated here—an unusually large number for one regiment. I am particularly referring to Laminitis as a peculiar sequel of castration; about twenty-five out of this number, after being castrated from five to ten days, were reported as not being able to take their usual gentle exercise, owing to fever in the feet. These symptoms varied very much in intensity in the different cases—in some instances both fore feet were affected and not the hind; in others one fore, and, in the worst form, all four feet, and to such a degree that the poor animals could not stand up. These symptoms, however, in severest cases did not last more than five days, when the patients were able to resume their exercise. The usual treatment of poultices and wet swabs in the less severe cases was adopted; in the serious cases, when the patients could not stand, in addition to the above treatment, refrigerating lotions of an evaporating nature were applied to the limbs with very much benefit; there were no bad results after these cases.

The next case is one of Peritonitis, which is not at all unusual as an after effect of castration; but in this instance it was surprising, to say the least of it. I herewith quote the case.

Case 199, *D.* 26.—March 2nd, 1887.—Peritonitis. The patient is a remount, and was castrated nine days ago, and progressing most favourably. The animal went through his food the evening previous, and showed no signs or symptoms of sickness of any sort; but at 5.30 a.m. in the morning he laid down, struggled for a few minutes, and died. No treatment. *Post-mortem* revealed most extensive Peritonitis, visceral and parietal, and extending to the pleura in thoracic cavity; there was about one gallon and a half of fluid in the abdominal cavity, which no doubt prevented the usual symptoms of Peritonitis being observed. There was lymphadenoma of the spleen well marked; the right ventricle of the heart was gorged with tar-like blood. Lungs and kidneys healthy. Discharged; died.

The following case, also taken from the record of treatment, is worthy of note, there being no cases of Paralysis, general or local, in the horses of the regiment. At the same time, I do not wish it to be inferred that I am positively stating that the castration had anything to do with it; but there the fact remains, that the Paralysis appeared without any other traceable cause, and as Paralysis is a nervous affection, there is no reason in my mind why it should not occur, as a sequel, in the same manner as Tetanus, mysterious though it may be.

Case 225, *D.* 39.—March 16th, 1887.—Paralysis, local (labiæ). The patient was recovering from castration, and almost fit to be discharged, when the lips were noticed to be in a pendulous condition, and he was with difficulty able to feed, although appetite very good. Inject Liq. Strychniæ above upper lip, and give Liq. Strychniæ ʒii, Aqua ʒiv, in a draught twice a day, and plenty of sloppy diet.

March 20th.—The lips are more pendulent, and the patient is quite unable to feed without assistance, the food being put into his mouth; he seems much distressed. Continue the draught, and assist the animal as much as possible by continual small feeds.

March 25th.—No improvement, and the animal is getting weaker and weaker. Try the galvanic battery three or four times a day locally.

March 27th.—Treatment of no avail. Patient rapidly loosing flesh. Give tonics and stimulants three times a day.

April 1st.—The patient weaker. Prognosis unfavourable; continue treatment.

April 11th.—Worse. All the tonic, stimulant, and nursing treatment of no avail; can do no more. Apply for a special casting committee to have him destroyed.

April 12th.—The patient died before the committee was convened. *Post-mortem* revealed all organs healthy, but very anæmic. Discharged; died.

I shall feel much indebted to the editor if he will kindly favour me with his valued opinion as regards the Laminitis portion of the paper, as I should like to know whether this condition after castration is as uncommon as I take it to be.

[Laminitis is an unusual sequel of castration.—Ed. *V. J.*]

Editorial.

IS HUMAN SCARLATINA DERIVED FROM THE COW?

THE recently published investigations of Dr. Klein would make it appear that human Scarlatina is derived from bovines, which, through the medium of their milk, convey the contagion to mankind, this being developed in an eruption on the udder and teats, and therefrom finding its way in the process of milking into the lacteal fluid. The announcement of this discovery has, as might be expected, caused great consternation and alarm in the public mind, and created something like a panic in the milk-producing industry. In this journal we have at various times given notices of Klein's researches, and we now publish an inquiry by Professor Axe into the outbreak of disease among cows at Hendon, which, it is stated, originated the epidemic of Scarlatina among those who partook of their milk.

We have no desire whatever to throw discredit or doubt on Dr. Klein's work, but accept all his facts as facts. In presence, however, of such a revelation, it is desirable to proceed with the utmost care and exactitude. To insist that there is no safety in using cows' milk as food unless it is previously boiled is calculated to frighten people, and to deter them from using a most important, indeed essential, article of diet, while it must greatly prejudice a great industry.

Already, the extensive prevalence of Tuberculosis in cattle, and the experimental evidence of its transmissibilty from them to other animals, not only by inoculating these with infective material, but by feeding them with flesh and milk from diseased beasts, has caused grave suspicion that mankind may suffer from the ingestion of such products; and now we have a most fatal and prevalent human disease traced to the cow, and what constitutes a large portion, if not the entire sustenance, of young children, considered highly dangerous for that reason.

Dr. Klein's experimental proofs are apparently sound, so far as they go, but it may be questioned whether they go far enough. We cannot experiment on our fellow-creatures in order to ascertain, in a positive and undeniable manner, whether an eruptive disease of the cow will produce Scarlatina; but in order to prove the identity of Scarlatina and the bovine malady—a most important point—we can try to transmit the human disease to the cow. This Dr. Klein has done, so far as we can learn, only in a few cases, but it should be attempted on a larger scale without delay, as upon its success or failure will depend the complete solution of a most pressing hygienic and pathological question.

The danger of jumping to conclusions is sufficiently obvious from what has already occurred in researches of this kind. To go no further than the question of identity of Small-pox and Cow-pox. It is almost universally accepted by medical men that the latter disease is merely Small-pox modified by transference to the cow. But no one ventures now-a-days to demonstrate this, nor can any evidence be adduced of Cow-pox ever again becoming Small-pox when re-transferred to man, which

it would, if the two maladies were due to the same organism or infecting principle.

Eruptions on the udder of the cow have long been observed, as they are common, and have always been considered benign and unimportant; certainly they have never been suspected of producing serious disease in our own species, and if they could give rise to Scarlatina that scourge must be much more widespread than it is even now.

Without prejudicing Klein's work, we must express the opinion that much has yet to be done before we can accept his conclusions as thoroughly established.

OBSERVATIONS ON MILK SCARLATINA.

THE subject of human Scarlatina, produced by a disease of cows, was alluded to in the last issue of the VETERINARY JOURNAL, by the publication of a paper read by Dr. Klein before the Royal Society; and as the discovery has caused much alarm, the Privy Council instituted an inquiry into the circumstances attending the origin of the outbreak. The following report by Professor Axe, with introductory remarks by Professor Brown, will be read with interest; though it is to be regretted that the origin of the malady is still undecided.

TO THE LORDS OF HER MAJESTY'S MOST HONOURABLE PRIVY COUNCIL.

MY LORDS,—In submitting the following report by Professor Axe for your lordships' consideration it is necessary to refer to the circumstances which led to the inquiry as to the connection between human Scarlatina and a certain eruptive disease of the udder and teats of the cow.

In December, 1885, an outbreak of Scarlet Fever in Marylebone, which was associated with the distribution of milk by a particular dealer, was investigated by the Local Government Board. Mr. Power, who was instructed to conduct the investigation, came to the conclusion, on what appears to be unquestionable evidence, that the outbreaks in Marylebone and other districts were traceable to milk obtained from a dairy farm at Hendon. Mr. Power was on further inquiry led to believe that the infection of the milk was not due to the introduction of infective matter from human Scarlatina, but to a diseased condition of certain milch cows at the farm, the disease having been introduced in the previous month by some animals newly arrived from Derbyshire; the evidence on which this conclusion was based is set forth at length in the Fifteenth Annual Report of the Local Government Board, 1885-86. In the same report, Dr. Klein gives an account of his investigation into the intimate nature of the ailment present among the Hendon cows; the result of the inquiry may be summarised in the words of the Medical Officer of the Local Government Board. By the inoculation into calves, either directly of the discharges from cow-ulcers or indirectly of sub-cultures artificially prepared, of the micro-organisms contained in those discharges, Dr. Klein has succeeded in producing, now local, now general, disease in the calf; disease having unmistakable affinities in its local phenomena with the Hendon cow disease, in its constitutional manifestations with Scarlatina in the human subject.

Since then Dr. Klein has ascertained that a micrococcus exists in the blood of human Scarlatina identical in morphological and cultural respects with the organism obtained from the Hendon cows; and further, that the introduction of this organism from the human subject into the system of the calf, either by inoculation or feeding, causes disease identical with that which

was last year produced in the calves which had been infected with matter from the Hendon cows.

Immediately after Mr. Power's report was laid before the Privy Council the Lord President directed that the matter should be investigated by the Agricultural Department, and subsequently the Royal Agricultural Society of England urged upon the Privy Council the importance of endeavouring to ascertain the truth, or otherwise, of the allegation that contagious diseases of the human subject, such as Scarlet Fever and Diphtheria, might arise from the consumption of the milk of cows affected with an eruptive disease of the udder and teats. The inquiry was commenced immediately, but owing to the alarm which was occasioned among dairy farmers by the publication of the report of the Local Government Board, it was found impossible to obtain any information from dairy farmers of the existence of the disease among their herds, although it is known to be extremely common among newly-calved cows.

Professor Axe's report is an important contribution to the history of the Hendon cow disease, because it deals especially with the identical malady among the herd of Derby cows, three of which introduced the disease into the Hendon dairy, while other parts of the herd were sent to different dairies in the country, carrying with them the affection which they communicated to cows with which they were brought in contact.

The evidence on both sides of the question may be thus stated: Professor Axe observes in his report that the cows in five dairies were infected with the eruptive disease of the udder and teats by the agency of the Derby cows. But in only one instance did Scarlatina result from the distribution of the milk. The evidence adduced by the Local Government Board in favour of the allegations that Scarlatina was the direct result of the cow disease is, first, that no other cause of infection of the milk was discovered after the closest inquiry; and, secondly, that inoculation of calves with the virus of the cow disease and the virus of Scarlatina produced morbid conditions which are identical with those of Scarlatina of man, and with the disease of the cow. The last link in the chain of the argument, viz., proof that inoculation with the matter from the ulcers of the cow disease will produce human Scarlatina is wanting.—I am, my Lords, your Lordships' obedient servant,

G. T. BROWN.

Agricultural Department, Privy Council Office,
May, 1887.

Report on a Disease in Cows in its relation to the Scarlatina Epidemic in the North-West District of London, December, 1885, *by J. Wortley Axe, Professor of Pathology at the Royal Veterinary College, Consulting Veterinary Surgeon to the British Dairy Farmers' Association.*

Milk in relation to public health has received a considerable amount of attention during the past twenty years, not only from the officials of the Medical Department of the Local Government Board, but also from human and veterinary medical practitioners and sanitary officers throughout the country.

From time to time, and with ever-increasing frequency, the most disquieting and even alarming circumstances have arisen in connection with the milk supply of our large populous centres, and inquiry has again and again revealed the fact that as a medium for the dissemination of contagious fevers milk stands conspicuously forward as the most likely vehicle. Diphtheria, Scarlatina, and Enteric Fever—the most common of infectious ailments—owe a large measure of their prevalence and mortality to the traffic in specifically infected milk; and I have elsewhere shown that some, at least, of the contagious fevers of bovines are probably capable of being transmitted to man

through the agency of this fluid. Foot-and-mouth Disease, and that more fatal malady, Tuberculosis, are apparently communicable from the lower to the higher animal; and it is a notable feature in the interchange of all these spreading disorders that whether existing in one creature or the other their clinical and pathological characters remain the same, and the contagia out of which they arise are incapable of inducing any other disorders than those which gave them birth. As the parent so the offspring is as true of each of the specific contagious fevers as it is of each variety of our dogs or horses. Whenever, therefore, any signal departure from this universally recognised principle is suggested by scientific men, especially as affecting our food supply, the question naturally invites attention from all concerned in guarding "Public Health."

Mr. W. H. Power having reported* to the Medical Department of the Local Government Board that a certain eruptive disease of the cow had proved capable of developing the virus of Scarlatina of man, the subject was deemed of sufficient importance to call for a special and independent inquiry.

Accordingly I received instructions from Professor Brown to inquire into the circumstances of the herd of cows referred to in Mr. Power's report, and to learn, as far as possible, the relation, if any, which existed between a certain eruption from which they suffered and the Scarlatina outbreak to which it is said to have given rise.

In order to render the inquiry as intelligible as possible, it will be necessary to relate some of the more salient facts and conclusions arrived at by Mr. Power in his report to the Local Government Board. They are as follows: On the 18th of December, 1885, Mr. Wynter Blyth, Medical Officer of Health of St. Marylebone, reported to the Board an outbreak of Scarlatina in the parish of St. Marylebone, and simultaneously at Hampstead, St. Pancras, St. John's Wood, and Hendon. The epidemic commenced about the latter part of November or the beginning of December, and on inquiry being made it was found to have arisen from the distribution of specifically infected milk derived from a dairy farm at Hendon. This conclusion appears to have been fully established by considerations of the relation of the epidemic to the particular milk supply. In this connection it was found that all the invaded families had obtained their milk from the suspected dairy, and that this constituted the only connecting link or circumstance in common between the several households. It was further remarked, in support of the same conclusion, that the Fever did not prevail in families who procured their milk from other dairies. In seeking to explain the source of contamination of this Hendon milk, the conclusions arrived at by Mr. Power were:—1. "That the milk had not acquired the ability to cause Scarlatina in any commonly accepted way, such as through unwholesome conditions of water or drainage, or through careless handling of milk or milk utensils by persons carrying Scarlatina infection." 2. That the eruptive disease from which the cows were found to suffer proved competent to produce Scarlatina among human consumers of the milk, and that to it, and it alone, the epidemic in question owed its origin and propagation.

Leaving the possible sources of infection of the milk by human agency, I pass on to consider the history of the cows out of whose ailment this specific fever of man is said to have arisen, and of other cows similarly and simultaneously afflicted

It may here be remarked that the incriminated milk was supplied from a dairy farm in the occupation of the late Mr. Panter, of Hendon. One hundred cows were engaged in the business, and it was the practice in recruiting the dairy stock to purchase newly-calved cows from the country as occasion required, and to dispose of the stale ones as they dried off.

* Medical Report to Local Government Board, 1886.

The last occasion preceding the Scarlatina outbreak in London, when fresh stock was brought upon the Hendon farm, was on the 15th of November, 1885. On that day three cows from Derby were purchased by Mr. K., a dealer. In replenishing his herd it was Mr. Panter's custom to submit all newly-purchased cows to a period of quarantine, in order to guard against the introduction of contagious animal disorders into the general herd.

The usual term of isolation was seven days, but sometimes, as in the case of the three animals in question, the period was prolonged to ten or fourteen days, as might be deemed necessary.

At the time of being sold to Mr. Panter, the three Derby cows were in good general health, but one of them had upon her teats a slight eruption.

Several others in the dealer's stock were suffering at the same time from the same affection, and in a few days all three of the cows purchased by Mr. Panter had contracted the disease. Later on they were removed from the quarantine shed and placed in standings among the general herd. After the lapse of a few days, the malady was noticed to spread from cow to cow, until nearly the whole of the herd had been brought under its influence.

To the herdsman and dairy farmer this eruption on the teats was quite familiar, and was recognised by them and by other dairy farmers of large experience as a common cow disease, which they had been accustomed to speak of as Cow-pox, and to disregard, except that additional care in milking was rendered necessary by the soreness of the teats and the spreading nature of the affection.

In no case, however, had they known epidemic fevers to occur in persons drinking the milk of cows so affected.

They urged, and with much force of reason, that had a malady so common in their experience possessed the property of communicating Scarlatina, the fact would on some occasion in the course of numerous outbreaks have been brought under their notice.

It was stated by one practically acquainted with the common ailments of cow stock that the form of eruption exhibited by the Derby cows, and by those infected from them, was seldom absent from the cattle markets of our large dairy districts.

During the prevalence of the disease at Hendon, I was deputed by the British Dairy Farmers' Association to visit Barnes farm, and inquire into the nature of the malady. On my arrival there the eruption on the teats and udder, which was the characteristic feature of the complaint, had in the majority of cases altogether disappeared; but in some instances there still remained such indications of the disorder as marked its declining stages. From what I then saw, added to information obtained from the tarmer and his herdsman, as well as from other dairymen, to whose herds the disease spread, I am able to record the main features of the malady as they occurred in the course of the outbreaks.

The disease is essentially an eruptive one, and with few exceptions confined to the teats. Occasionally it extends to the udder, and in some exceptional cases it is stated to have been associated with a scaliness and thickening of the skin about the quarters, and with loss of hair in scattered patches.

The first indication of the malady is shown by redness and tumefaction of the teat, which soon becomes tense and painful to the touch. In from twelve to twenty-four hours after the onset of the eruption, vesicles appear on the inflamed parts, and these, on being broken, as usually occurs in the act of milking, expose a red, angry-looking ulcer, varying in size from one-third to three-quarters of an inch in diameter. The ulcers are mostly rounded, but sometimes ovoid or elongated, in the latter case resembling an

ordinary crack in the teat, the result of "chapping." After the discharge of a little blood-stained matter, the surface of the ulcers become coated over with a blackish or reddish-brown scab, beneath which the process of healing commences, and if undisturbed continues without interruption, repair being completed in from six to nine days. Where, however, the teat is exposed to the daily irritation occasioned in milking, the healing process is rarely completed before the expiration of from two to three weeks.

In some cases the eruption is confined to one teat only, in others it extends to two, and less frequently to three, or even all of them may be invaded.

From the first to the last the appetite remains unimpaired, and the flow of milk continues undiminished throughout the disease. The body temperature remains normal, and in every other respect the general conditions are such as to denote entire freedom from constitutional disturbance.

Of this affection it can be said that it is essentially contagious, spreading chiefly in the act of milking, by the transference of the discharges from the teats of the diseased to those of the healthy.

There is reason for the belief that one attack affords protection against a second, but the period of immunity is not determined.

From the cow the disease is frequently communicated to persons engaged in dairy work, where skin abrasions and scratches afford ready access to the virus. It is, as has been previously stated, an affection of common occurrence, and one I have frequently witnessed in dairy herds in various parts of the country.

The following are the facts which I have ascertained in regard to the history of the Hendon cows, and others associated with them.

The three cows purchased by Mr. Panter, and out of which the Scarlatina epidemic is stated to have arisen, were part of a lot of thirty cows bought by a dealer in Derby market on the 16 and 30th of October respectively. From the date of their arrival in Middlesex they were on offer for sale, and each day, or every other day, one, two, or more were sold to customers as they presented themselves. At this time several of the new cow stock were suffering from sore teats, and others contracted the disease before being disposed of.

So long as they remained in the dealer's hands they, with the unaffected cows, were regularly milked morning and evening, and the produce of the whole was disposed of in the usual way.

From the first day to the last while the milk of these cows was being drunk, no case of Scarlatina was heard of among the customers of the dairy.

Of the thirty cows above referred to eight were sold to a dairyman, whom I shall designate Mr. A., three were sold to Mr. B., and three to the late Mr. Panter, the unfortunate Hendon farmer. The remainder were disposed of in ones and twos to various metropolitan and provincial dairymen.

On arriving at Mr. A.'s three or four of the eight cows were noticed to have sore teats, but in other respects they appeared to be in perfect health, and this view of their condition was strengthened by the plentiful yield of milk each and all of them afforded.

Suspecting the eruption to be what is generally known as "Cow-pox," and fearing it might spread to the other portion of the herd, the herdsman was instructed to exercise such measures of prevention as would restrict the disease to the new-comers. The injunctions of the herdsman as to conducting the milking operations were not sufficiently regarded by the milkers, and in a few days it was found to have spread to other cows in the shed, and soon between thirty and forty of the herd were more or less affected by it. The trouble occasioned by so many cows with diseased teats was such that the services of two extra men had to be enlisted in carrying on the milking

operations, and in several cases hand-milking had to be abandoned to the use of the syphon.

While the disease was prevailing among the cows two of the milkers—men about twenty years of age—drew attention to an eruption on their hands, which, as far as the dairyman could judge, was identical with that on the teats of the cows.

Both cases were afterwards seen by a resident medical practitioner, who informs me that the men "were suffering from a well developed attack of 'Vaccinia,' contracted by them in milking," and that so far as concerns their general health it was in no way disturbed.

To the two cases above referred to a third may be added. It occurred in the person of a man engaged in milking who had a small pimple on his face. Being irritable, he was induced to scratch the part with his hands tainted with the discharges from the diseased teats, with the result that a similar eruption shortly afterwards appeared on the inoculated spot.

These three cases assume the form of accidental experiments, and seem to exonerate the Hendon cow disease from any relation with or participation in the London Scarlatina outbreak. During the entire period while this cow disease prevailed there was no abatement in the produce of the dairy. Each cow giving an average daily yield of milk, consuming an average daily ration of food, and manifesting all the indications of good general health.

Notwithstanding the condition of the herd as to the eruption, the milk from each and every one of them continued to be distributed among the customers of the dairy each morning and evening, and at no time was any complaint lodged against it, nor was its wholesomeness brought in question.

That it did not possess the ability to produce Scarlatina or any other specific fever may be inferred from the testimony of the Medical Officer of Health, who has reported that no epidemic of any kind existed in the neighbourhood at the time.

While the disease was running its course here, the Scarlatina outbreak in London and its reputed cause was brought to the knowledge of Mr. A., who at once visited the suspected herd and carefully examined them. Finding the disorder of the Hendon cows to be identical with that of his own, he naturally became concerned as to the health of his customers, and on his returning home caused inquiry to be made in every direction, with the result as stated above on the authority of the Medical Officer of Health.

The disease thus transmitted by the now notorious Derby cows was not confined to the dairy of Mr. A., for it appears that in the month of January, when the malady appeared to have died out, and it was thought to have lost its contagious property, seven of the cows which had recently suffered from the eruption were disposed of to Mr. C., and added to a herd of over one hundred cows. The purchaser of these animals informed me that a short time after their arrival at his farm several of his herd became affected with an eruptive disease of the teats. Its spread here, however, was of very limited extent. This is accounted for by the fact that the great bulk of the herd had passed through the disease a few weeks before, and had thus become protected from a second attack.

The dairyman was fully conversant with the London epidemic of Scarlatina, and the suspicion which attached to the Hendon cows; but he continued to dispose of the milk as usual, assured by former experience of the disorder that it was quite incapable of harm. This conclusion was fully justified by the fact that no complaint was made in response to his repeated inquiries as to its wholesomeness, nor was there any special sickness of any kind among those who drank it.

The presumption of the inability of this cow disease to produce Scarlatina does not rest on these interesting and instructive cases alone, for, as I have previously pointed out, three of the Derby cows were sold to another dairyman, who has been good enough to forward me information respecting them. I shall distinguish him as Mr. B. This man received his new purchases on the 24th of October. On their arrival from the dealers it was remarked, while being milked, that one of them had an eruption on the teats, but no importance was at that time attached to it.

Some time during the first week of November the same form of disease was observed in other cows in the herd, and in a short time upwards of a dozen of the old stock became affected by it. Special precautions were now taken to guard against a further extension of the malady, the chief of which was to milk the diseased animals after the healthy ones, so that the tainted hands of the milkers should not be brought into contact with the teats of the latter. This, with other sanitary observances, proved effective in putting a stop to the affection and ridding the dairy of what was regarded as a troublesome but otherwise harmless ailment.

Here, as in the other cases already referred to, the milk was disposed of as usual without any ill consequences arising out of it.

Referring to Mr. Panter's practice in dealing with newly-calved cows, Mr. Power states the fact that "as matter of custom their milk is not used in the business immediately after calving, but after awhile and before the cow is removed from the quarantine shed if it is judged permissible to use the quarantine milk." In this connection I am informed by the dealer that one of the three Hendon cows calved at Derby and the two others while in his possession. All of them had calved several days before they were disposed of, and on being delivered to Mr. Panter were quite "clean" and ready to enter into the service of the dairy at once. That they did so I was assured by Mr. Panter himself, who stated, in reply to my inquiry, that from the day they came upon the farm the milk from these cows was mixed with the general stock supplied to the London retailers. The three Derby cows were added to the incriminated herd on the 15th of November, and from that time the milk furnished by them would be brought into use.

Now, the period of incubation of Scarlatina is from two to six days, and it is not unreasonable to infer that had the cow disease possessed the power, attributed to it of inducing Scarlatina, the London outbreak would have disclosed itself about the 18th to the 21st of November, but, as a matter of fact, it was not until the latter end of the month, or the beginning of December, that anything was heard of it.

In some cases which occurred in the course of the epidemic the period of incubation was noticed by Mr. Wynter Blyth to have been remarkably short, and in his report to the vestry of St. Marylebone he addresses the following examples:—"A child in the parish of Paddington came to see an uncle living near Dorset Square, had some of the milk, and in two days the symptoms appeared." In another case "a young gentleman came from a military college where there was no Scarlet Fever, drank some milk unboiled, and on the third day sickened with a mild attack of Scarlatina." It may be inferred therefore, that the type of the outbreak tended toward a brief incubative period.

Reviewing the facts stated above, I am of opinion that the disease which prevailed in the several herds referred to above had a common origin, being, in all, directly or indirectly, derived from the Derby cows. Five dairies were thus infected, but coincident Scarlatina was unknown in the customers of four of them, and the inference becomes irresistible that the London epidemic, which has been imputed to the fifth, had its origin in some obscure source connected with the dairy by channels which inquiry has failed to reveal.

March, 1887. J. WORTLEY AXE.

THE ORGANISMS OF THRUSH, FAVUS, AND HERPES.*

GRAWITZ has demonstrated that the organism of Thrush is not, as it was formerly supposed to be, identical with the *Mycoderma aceti;* also that the *Achorion Schonleini, Tricophyton tonsurans,* and the *Oidium lactisne* are not merely varieties of the same species, but, on the contrary, they widely differ from each other, in their development, in the various culture media, in their fructification, and affinity to the different stains commonly used.

1. In slide cultivation on gelatine the *Odium lactis* grows very rapidly, forming delicate mycelia, which generate without liquefying the gelatine. The *Tricophyton tonsurans* grows much more slowly and liquefies gelatine, in which it makes small depressions or pits, where the growth which in the centre is the colour of chalk thickens and branches out into rays. The white centre is formed of separate threads or filaments, which at the sides form numerous branches, and usually have elliptical-shaped joints or divisions. In cultivations that have been growing for some time the centre assumes a clear yellow, and the filaments an orange colour. The *Achorion* grows still more slowly, and macroscopically it is almost impossible to distinguish it from the *Tricophyton*, except that the germinative utricules have a distinct ramified appearance and the filaments are not divided into joints.

2. In gelatine the *Odium* multiplies without liquefying it; the *Tricophyton*, on the contrary, liquefies it very quickly, and forms a thick crust, white on the top and yellow below. The *Achorion* liquefies gelatine still more slowly, grows with difficulty, and does not form joints. All these three grow well at the ordinary temperature of a room.

3. In Agar-agar, kept at thirty degrees Centigrade in the incubator, the *Odium* forms a thin cloud over the surface, composed of thin jointed filaments that ramify with each other; but their thickness, size, and form greatly vary. The *Tricophyton* will form a colony of mycelia of the size and thickness of a lentil bean, which, of a yellow colour in the interior, appear to be powdered over with flour on the surface. These colonies join each other at the circumference. The *Achorion* forms flat, oval-shaped colonies in clear rings, which diverge from a central point having the same colour as the *Tricophyton*. Under the microscope the *Achorion* greatly resembles the *Tricophyton*, only the filaments are thinner and smaller.

4. In blood serum the *Odium* develops in almost the same way as in Agar-agar. The *Tricophyton* forms a layer, which in places is covered with thick, oval, white spots, that soon turn yellow and liquefy the serum. The filaments of the *Achorion* much resemble those of the *Tricophyton*, except that they are more branched. Macroscopically, the culture of the Favus forms oval depressions, which later on become dry in the centre, and of a white or yellow colour.

VETERINARY HONOURS.

IN the Jubilee Gazette, issued on June 21st, among the eleven mayors upon whom the honour of Knighthood was conferred appears the Mayor of Windsor, H. L. Simpson, J.P., F.R.C.V.S. And in the list of Companions of the Bath (C.B.) appear the names of George Thomas Brown, Esq., Professional Officer (Veterinary), Committee of Council for Agriculture; and Principal Veterinary Surgeon George Fleming, Headquarters Staff of the Army.

* From *Der Thierarzt*, No. 11, 1886. By Joshua A. Nunn, F.R.C.V.S., F.R.G.S. Army Veterinary Department.

Proceedings of Veterinary Medical Societies, &c.

ROYAL COLLEGE OF VETERINARY SURGEONS.

SPECIAL MEETING OF COUNCIL, HELD TUESDAY, MAY 24TH, 1887.

DR. FLEMING, President, in the chair.

Present:—Professors Axe, W. Duguid, William Pritchard; Messrs. J. D. Barford, B. Cartledge, J. S. Carter, J. Roalfe Cox, E. C. Dray; Dr. Fleming; General Sir Frederick Fitzwygram; Messrs. Thos. Greaves, J. Harpley, James McCall, W. F. Mulvey, H. R. Perrins, A. H. Santy, J. H. Simcocks, H. L. Simpson, J. F. Simpson, Peter Taylor, William Whittle, W. F. Wragg, and the Secretary.

The SECRETARY read the notice convening the meeting.

On the motion of Mr. DRAY, seconded by Mr. CARTLEDGE, the minutes of the previous meeting were taken as read and confirmed.

Absentees.

The SECRETARY informed the Council that he had received letters from Professors Walley and Robertson and Mr. Woods, regretting their inability to attend the meeting.

Election of President.

Mr. E. C. DRAY said that again he had the pleasure of proposing a gentleman to fulfil the duties of President of the Royal College of Veterinary Surgeons. It was desirable, in the selection of a candidate, that he should possess undeniable qualifications to command the unanimous support of the Council. The gentleman whom he had the gratification of nominating was Mr. H. L. Simpson, of Windsor. The honours and distinctions which had been conferred on that gentleman made it in every way desirable that he should occupy the position of President of the Council. Mr. Simpson had been a most energetic member of the Council, and most devoted to the profession at large. He felt sure that if Mr. Simpson were elected that day through his position and his influence he would exert all his powers for the advancement and the welfare of the profession. It should be borne in mind how much Mr. Simpson was held in the estimation of the profession. At his re-election on the Council he had obtained a high number of votes. He therefore trusted that the Council would unanimously elect Mr. Simpson as their President for the ensuing year.

Mr. CARTLEDGE seconded the motion.

The ballot was then taken, and Mr. H. L. Simpson was unanimously elected President of the Council for the ensuing year.

Mr. H. L. Simpson then took the chair in the place of Dr. Fleming.

The PRESIDENT said he begged to return his sincere thanks for the very great honour conferred on him in being elected President of the Council. He realised the responsibility of the position deeply, for he felt that it would be useless, especially at this crisis, to attempt to enjoy the honours of the position unless he was prepared to face and grapple with the responsibilities and difficulties which might beset his path. With regard to himself, he might say that he was born in the profession, and had been a humble worker in it ever since he had been admitted a member of it, and, under these circumstances, he trusted he should be able to fulfil some of the good wishes which had been vouchsafed to him. With regard to the future, he had noticed, with a great deal of satisfaction, that, as the annual meetings came round, the President had not been obliged, like the leader of a party, to make any declaration of policy. The Council elected the man whom they thought most likely to be of service to them, and they rather left to him the destinies

of the profession—that was to say, they did not hamper him in any way. There had been a rumour of late that disunion was threatening—that the privileges which they enjoyed under their Charters and Act of Parliament were likely to be interfered with. He was a Unionist to the backbone, and he would do his utmost to combat the efforts of anybody who attempted to interfere with the rights and privileges which were at the present time enjoyed by the Royal College of Veterinary Surgeons. Unfortunately, during the last year, there had been differences which had somewhat disturbed the peace of the profession, and possibly had interfered with its welfare. As he had said on another occasion, he was a man for "peace with honour," and he hoped the profession would make an earnest endeavour to try and settle the differences which had prevailed between an Edinburgh section and the Royal College of Veterinary Surgeons. His election was with the unanimous vote of the profession, and it was for the Council to back him (the President) in endeavouring to preserve peace in their ranks. The profession had immensely added to its power, for it had several Charters and an Act of Parliament, and all that was wanted was time to unite their forces and use their power with moderation. They had the strength of a giant, and they need not use it as a giant, but judiciously and carefully. They must all admit that they were deeply indebted to their excellent friend, Dr. Fleming, who had vacated the chair, for the great advances which had been made, and for their having obtained the last Charter and the Act of Parliament. They could not, he thought, look back upon those ministerial acts which Dr. Fleming had been so instrumental in bringing about without feeling how much they were indebted to him. He again thanked the Council most heartily for their kindness in electing him their President, and he assured them that he would do his utmost to maintain the honour and dignity of the profession.

Professor PRITCHARD proposed a hearty vote of thanks to the late President. Everyone who knew Dr. Fleming must know that he had transacted the business of the College in a most business like and efficient manner.

Mr. A. H. SANTY seconded, and Mr. DRAY supported the resolution, which was unanimously agreed to.

Dr. FLEMING said that at any time a vote of thanks from the Council was an honour which must always be received with great gratitude and pleasure. He resumed the office and responsibilities of President last year because there was no one at the time who would be likely to accept the position. He confessed that it was with some misgivings that he undertook the duties, but, nevertheless, having spent the best years of his life in promoting the interests of the profession, anything that the Council desired him to undertake must necessarily receive his ready assent. The duties of the office during the past year had been somewhat unexpected. There were certain functions pertaining to the office demanding a great amount of care and entailing a vast amount of thought and attention. He confessed that the event which occurred during his year of office had been entirely unlooked for; nevertheless, as President, he had worked to the best of his ability to maintain the dignity and high reputation of their calling, and to steer the ship through the rocks and shoals in which they found themselves for the moment. He was not at all apprehensive of anything serious occurring from the results of the disturbance to which he alluded. He knew the Royal College was entirely in the right, and that the people who had put themselves in opposition to it were in the wrong. He need not say that he was heartily pleased that Mr. H. L. Simpson had been elected to the office of President. He was sure that the dignity, welfare, and reputation of the profession would not suffer at his hands. He (Dr. Fleming) had held the office of President for a number of years at the pleasure of the Council, and, although he should

never hold that office again, it would always be the greatest satisfaction to him to know that he had merited approval in what he had done.

Election of Vice-Presidents.

Mr. Woods, Professor Brown, Messrs. J. F. Simpson, Blakeway, Simcocks, Bell, Santy, Banham, Briggs, and Walters were nominated for election as Vice-Presidents.

The ballot was taken and the CHAIRMAN declared Messrs. J. F. Simpson, Simcocks, Woods, Professor Brown, Mr. Santy, and Mr. Briggs to be duly elected Vice-Presidents.

Election of Treasurer.

Professor PRITCHARD moved that Mr. E. C. Dray be elected as Treasurer for the ensuing year.

Mr. J. ROALFE COX seconded the motion.

Mr. E. C. DRAY said he was extremely obliged to Professor Pritchard for proposing his re-election as Treasurer, but he was sorry to have to inform the President that owing to failing health he must retire from the Council. He had not taken the step without due deliberation or without very eminent medical advice, and, therefore, at the termination of the meeting his alliance with the Council must cease.

Professor PRITCHARD expressed his sorrow at the decision arrived at by Mr. Dray, but at the same time trusted that he would see his way to reconsider the matter and remain with them as Treasurer.

The PRESIDENT said that the Secretary had kindly offered that at any time when it was necessary he would call upon Mr. Dray and so save him the labour of coming from his home as much as possible, in order to attend to necessary duties. He (the President) hoped most sincerely that Mr. Dray would see his way to remain in office.

Mr. B. CARTLEDGE also urged Mr. Dray to take the office of Treasurer for another year. He should exceedingly regret to have to attend the Council meetings without having the pleasure of seeing Mr. Dray, who had been so honourably and so long connected with the profession, and it would be a great loss to every member of the Council whose acquaintance and friendship he had to lose him as a member of it.

Mr. W. F. WRAGG also endorsed everything that the previous speakers had said, and asked Mr. Dray as a favour to continue his services on the Council.

Mr. E. C. DRAY said that he was quite overwhelmed with the kind remarks which had been made. He was really most anxious to remain, and if he acceded to the wishes of the Council and remained in office they must allow him to go away very frequently before the meetings had concluded. Under these circumstances, if it was decidedly the wish of the Council, he would remain with them.

The ballot for the election of Treasurer was then proceeded with.

General Sir FREDERICK FITZWYGRAM suggested that their solicitor should be consulted as to whether, when there was no opposition, it was necessary to have a poll. He thought the solicitor would rule that when there was no opposition the clause in the Act did not require a poll to be taken.

The PRESIDENT then announced that Mr. E. C. Dray had been unanimously elected Treasurer for the ensuing year.

Dr. FLEMING said that he received the announcement of Mr. Dray's re-election with very great pleasure. It was with deep regret that he had heard Mr. Dray's intimation of his intention to retire from the Council and from the office which he had held so worthily for so many years. He could testify

to Mr. Dray's devotion to his duties, and to his extreme anxiety that the finances of the Corporation should stand in a good position, and to his extreme care in allotting the funds. He was sure he would be only expressing the opinion of the Council in proposing a vote of thanks to Mr. Dray for the valuable services which he had rendered to them, and also on behalf of the profession for his having accepted office under the conditions which he had stated.

Mr. J. H. SIMCOCKS seconded the motion, and said he entirely agreed with every observation which had fallen from Dr. Fleming. He trusted that Mr. Dray would for many years to come be able to perform, in the future as he had done in the past, the duties of Treasurer.

The motion was carried with acclamation.

Mr. E. C. DRAY, in reply, thanked Dr. Fleming and the Council generally for the flattering terms in which his name had been mentioned. He had only to reiterate that if he could be of service to the College he would do the utmost in his power. If he was in order he should like to mention that their old associate, Mr. Greaves, had given a third contribution to the College Fund, but it was given conditionally, that other members of the Council should follow the good example. He was sorry to say that that had not been done; but as it was never too late to mend, he hoped the Council would take the matter into consideration and follow Mr. Greaves's generous example. He also hoped, as he had said at a previous meeting, that before "shuffling off this mortal coil," he would see the institution out of debt.

Appointment of Secretary and Registrar.

Mr. E. C. DRAY said that having been so much connected with their worthy Secretary and Registrar, Mr. Arthur William Hill, he could speak with sincerity and truthfulness of how assiduous he had been in his duties, and he thought the College might congratulate itself in possessing a Secretary who identified himself so much with the interests of the institution. He had great pleasure in proposing the re-election of Mr. Hill.

Mr. GREAVES said that he had had considerable experience on the Council, having sat under four secretaries. They had not had one that he had more confidence in or more respect for than the present Secretary, Mr. Arthur W. Hill. He had great pleasure in seconding Mr. Dray's proposal.

Mr. E. C. DRAY said that the Register had been greatly improved of late, and he trusted that members of Council would assist Mr. Hill by informing him of any deaths in the profession that might occur in their districts. If such information were forwarded to the Registrar it would be of the greatest assistance to him.

The ballot was then taken, and the PRESIDENT declared Mr. Hill to be unanimously re-elected as Secretary and Registrar to the Royal College of Veterinary Surgeons.

Dr. FLEMING said that he should be neglecting his duty if he did not express the pleasure with which he received the announcement of Mr. Hill's re-election. He had had a great experience of Mr. Hill's abilities, of his constant attention to the duties of the Royal College, and of his extreme anxiety that those duties should be most carefully carried out. He could testify also to the extremely great services which had been rendered to the College and the profession by Mr. Hill. He therefore thought that the Council should be thoroughly satisfied to find that it was again for another year in the hands of the same Secretary, who had been so long in, and devoted himself so much to, their service.

Mr. A. W. HILL said that he could not thank the Council too much for their expressions of kindness and for the honour conferred in re-electing him as Secretary and Registrar. He thanked them for his re-election, and his

best endeavours would be to do the utmost he possibly could in the interests of the Council and of the profession.

Notice of Motion.

Mr. A. H. SANTY gave notice of motion that at the next meeting of the Council he should lay designs on the table for the window which was to be given by the North-Eastern Counties Veterinary Association and the Lancashire and Western Counties Association.

Mr. E. C. DRAY said that before separating they ought to propose a vote of thanks to their new President. He had made an excellent beginning, and if he followed it up in the way he had commenced the profession must necessarily reap the harvest. He was glad to congratulate Mr. Simpson on his position, of which he was most deserving, and he trusted that health would be granted him to carry out his duties.

Mr. GREAVES seconded the motion. It reflected, he said, great honour and credit on the Council that a man occupying so distinguished a position as their President had done them the honour of presiding over them.

The motion was put to the meeting and carried.

The PRESIDENT expressed himself as exceedingly obliged for the encouraging proof of their confidence in him. The duties that day had certainly not been of a very arduous character. If, however, he had given satisfaction in this preliminary, he hoped to continue to do so throughout the year.

SCOTTISH METROPOLITAN VETERINARY MEDICAL SOCIETY.

(*Continued from page* 454, *vol. xxiv.*)

The study of anatomy was revived about the middle of the sixteenth century by Vesalius, at Pisa. Eustachius followed in his footsteps, and their discoveries tended much to shake the authority of Galen. Galileo and Bacon also introduced a new system of philosophy which had the effect of overturning the system of Aristotle, and by the middle of the seventeenth century the authority of Aristotle in philosophy and of Galen in physic were all but completely destroyed.

Every department of science had now undergone a thorough revision; anatomy had been gradually improving for a hundred years; the minds of men were being prepared for receiving new facts, when, in the year 1628, our immortal countryman Harvey published to the world his discovery of the circulation of the blood, but it required half a century for the circulation of the blood to be admitted; and it is well known that the doctrine was not received by any physician who was more than forty years old. This discovery overturned all the former theories of the constitution of the body, and placed the science of medicine on the sound basis of mathematical demonstration. Previous to the discovery of the circulation by Harvey, the lacteals had been discovered by Asselius, and the receptacle of the chyle and the thoracic duct by Pequet. The true course of the blood and the chyle being thus known, the liver was removed from the important function it had held so long in the system of Galen. In this manner the animal economy, which had hitherto been viewed in separate parts, and had been looked upon from without, was now studied from within, and as a connected whole.

Before this period the Galenists, and still more the chemists, had been accustomed to look upon the state and condition of the fluids of the body, both as the sole cause of disease and the only means of explaining the operations of medicines. They were therefore called humorists. But after Harvey's discovery the attention of physicians was, in some measure, forced

towards the organic system. The study of mathematics also prevailed at the same time, and what were called the mathematical or mechanical physicians arose. By degrees all the systems became blended together, and the science of medicine was gradually improved.

Sydenham, about the middle of the seventeenth century, formed a system of medicine for himself; he sought rather for theory to unite his observations under general heads than for facts to confirm his theory.

Among the most distinguished names in medicine during the seventeenth century may be mentioned—Glisson, Bartholin, Rudbeck, Fabricius, Hooke, Sylvius, Willis, Riolanus, Fallopius, Bellini, Pitcairn, Mead, and Friend. Towards the close of the seventeenth and the beginning of the eighteenth century we have the celebrated Stahl, Hoffmann, Boerhaave, each of whom formed a new and considerably different system of medicine. Time will not permit to describe the life-work of each of these great men. That Boerhaave was one of the greatest physicians of modern times cannot be denied. At one time he held the chair of theoretical medicine, practical medicine, botany, and chemistry. There is a story that a Chinese mandarin wrote him a letter, which easily reached him, addressed to Boerhaave in Europe. The learned of every part of Europe corresponded with him, and every academy desired to be honoured by dissertations from the hand of the most distinguished master of his art. Patients came from the more distant parts of Europe to consult him. The pecuniary proceeds of his practice must have been enormous, for at his death he left more than two millions of florins. After these, in the eighteenth century, we have the names of Haller, Heberden, Cullen, Brown, Gregory, Hunter, Jenner, Galvani, and Volta. Time will not permit me to touch on the doings of all these great men, but it would be remiss in me if I were to pass over without paying a word of tribute to Hunter and Jenner. Hunter may be said to have been as great a man as ever practised surgery. His operation for aneurism was one of the most brilliant discoveries of his century. He was the first to describe inflammation of the veins. He first published lucid views on the venereal disease, and by his work on inflammation improved the modes of practice applicable to nine-tenths of the diseases which fall within the province of the surgeon. But it was less by individual discoveries than by the general tone of scientific investigation which he gave to surgical practice that he made it a science rather than a mechanical art, and induced men of far higher attainments than those who had before practised it to make it their study.

The discovery of vaccination by Jenner may be said to have eclipsed every other discovery of modern science in the amount of benefit it has conferred on the human race. The first incident in the story of discovery dates back to the time when Jenner was apprentice with the eminent surgeon Mr. Ludlow, at Sodbury. One day a young country-woman appeared at the surgery of his master for advice. The Smallpox was casually mentioned in her hearing; she immediately observed, "I cannot take that disease, for I have had Cow-pox." This assertion made an impression in Jenner's mind; it was the first time he had heard what had been a tradition among the peasantry in the dairy districts of Gloucestershire for many years. The progress of vaccination was darkened at the outset by various disappointments and obstacles. Objections were numerous, and rival claims to the merit of discovery were set up. But a high tribute was paid to Jenner in the year 1799, when a large number of the leading physicians and surgeons signed an earnest expression of their confidence in the efficacy of the Cow-pox.

Since the time of these distinguished men we have the names of many eminent men, so well known to the student of medicine that it would be superfluous in me to enumerate them, who, by their individual efforts, have

helped in advancing medicine with such rapid strides to the position which it now occupies. Within the last fifteen or twenty years, what science has advanced with such incredible speed as the sciences of chemistry, pharmacology, physiology, and pathology? And within that time we have the new science of bacteriology added to our list, and which is likely to make a revolution in medicine. The veterinary profession can justly lay considerable claim to the reputation of the advancement of this the youngest and most promising of our ologies. And within the period of fifteen or twenty years veterinary literature has made wonderful progress, principally through the efforts of a band of workers devoted to the science and practice of their profession, and who richly deserve the thanks and admiration of the general body of the profession. Let us hope that the future may be still more fruitful in results, and to this end may the motto of each of us be "Excelsior!"

On the motion of Professor BAIRD, seconded by Principal WILLIAMS, a cordial vote of thanks was accorded to the President for his address.

Azoturia in the Horse—How Doctors Differ!

Professor M'FADYEAN, on rising to direct the attention of the meeting to a disease he had recently been investigating, said that with the change of president he could not help congratulating himself that he was now in no danger of being arbitrarily silenced because he might have to express opinions that did not harmonise with those of the chairman. The disease was known by the name of Azoturia. His attention was first directed to that disease because he thought the current pathology of it was in direct conflict to some well-known facts in connection with physiology. He believed the commonly accepted theory of Azoturia was that it was excited by strong muscular action after the animal had been standing for a time at rest; and that there was in the urine of the animal, almost immediately after the first symptoms of the disease, a great excess of urea. This theory further supposed that while the animal was standing at rest, and getting its ordinary diet, nitrogenous compounds were being stored away in the animal system for future use. When that animal was put to work there was a rapid metabolism of those albumenous matters, and thus urea was formed, and appeared in the urine in great excess. That theory appeared to him to be founded on an error, for the excretion of urea has been proved to be practically independent of muscular exertion. He investigated a considerable number of cases in the practice of some of his friends. In no case did he find an excess of urea in the urine, if the urine was taken immediately after the attack. He perhaps should state, however, what he regarded as the normal proportion of urea in a horse's urine—twelve grains of urea per ounce of urine. In only one of the cases he examined did the urea amount to twelve grains per ounce of urine. In some cases there were only nine grains of urea. He did not trust his own chemical abilities. The urine was analysed in the chemical laboratory, and calculated on the basis of the total amount of nitrogen present. In the most recent case which came under his observation, the second sample of urine was of lighter colour than the earlier specimen, and contained about eighteen grains of urea. This might be attributable to the fact that the animal had not consumed any water during the previous twenty-four hours. The next point in which his observations differed with current opinions was that whereas it was stated that albumen was not present in the urine, he found albumen always present, in some cases amounting to as much as one-third. When proper precautions were taken to precipitate it, albumen was easily discovered; and he thought that the reason why certain investigators had failed to demonstrate the presence of albumen was to be found in their neglect of these precautions.

A third point in which he found himself at variance with current opinions was, that the urine was ammoniacal when it was passed. He found no ammonia when it was newly passed, but that after lying for a short time it became ammoniacal. He did not intend to form a theory, however, of Azoturia; he wished to simply give the gentlemen present a *résumé* of his experience of the disease, and he hoped it might lead to further research in this important matter. (Applause.)

Professor M'CALL, Glasgow, asked whether the death of the animals was supposed to be due to Azoturia.

Professor M'FADYEAN: All the cases were unmistakably caused by Azoturia.

Professor M'CALL said that he had seen several cases of the disease, but was not aware of any of the animals in his practice having died from it. The muscular tissue in some cases got paralysed, but the animals, with careful treatment, invariably recovered.

Principal WILLIAMS said he had seen the very same conditions as those described by Professor M'Call—the animal wasting away to a mere skeleton. They usually wasted so far that they took from nine to twelve months to recover. He had had a good deal of Azoturia. He thought he was the first to describe the disease as Azoturia, excepting Haycock, who called it Hysteria, and he confessed his conclusions were different from those of Professor M'Fadyean. In few cases he did discover albumen to be present. In many cases he found nothing in excess but urea. They would observe the analysis of the urine in his book, and he thought that at one time at least he had Professor Walley's support that albumen was absent. In the last analysis made he found urea, albumen, and sugar present; but he differed entirely with Professor M'Fadyean, when he said that the urine was not ammoniacal. (Hear, hear.)

Professor M'FADYEAN: Would Principal Williams kindly say what he considered the proper ratio of urea?

Principal WILLIAMS: I have said what I had to say, and I decline to be cross-examined by Professor M'Fadyean. (Hear, hear.)

The PRESIDENT thought the disease should be further investigated. In one case which came under his observation blood was present in the urine; in another there were 8·3 grains of urea; and in another urea was still more plentiful. In this last case the urine was loaded with crystals. He always treated the disease as Congestion of the Kidneys, because he found the kidneys invariably more or less paralysed. He did not believe in putting the affected animals in slings; he preferred to let them lie until they were able to raise themselves. When they could urinate freely they usually recovered quickly—about three or four days was the longest he had ever seen ill. The last animal under his treatment rose to his feet on the third day, but it relapsed and died.

Mr. CAMPBELL, Kirkcudbright, said his experience had been that, in the event of his patients getting down, death was the inevitable result. He, like Professor M'Call, also found that the muscles of the quarters of the affected animals were injured, and that they entirely recovered again within thirteen months.

Mr. SPREULL, Dundee, said he had been unable to make up his mind as to the exact nature of the disease, but they undoubtedly had paralysis in almost every case. What that arose from he could not venture to say, but he never found blood-cells in the urine. He had one very bad case recently, in which the patient lay for ten days, and his urine was strongly ammoniacal.

On the motion of the PRESIDENT, it was resolved that the subject should be more fully considered at the next meeting of the Association, when Professor M'Fadyean agreed to open the discussion.

The Examination Disturbances.

Reference having been made to the recent disturbances among the veterinary students regarding their examination in Edinburgh, Mr. CAMERON, Berwick, deprecated the newspaper warfare that had been carried on as a greater disgrace to members of the profession than the disturbances were to the students, and characterised the proceedings of the London Council at its recent meeting, as an insult to common sense and justice. (Applause.) It might be expected that as a society they should take some notice of the matter, and he suggested that something should be done. He suggested whether the meeting should not express regret that the students on a recent occasion should have been guilty of a gross breach of gentlemanly conduct, and entreat the students so to conduct themselves in future as to adorn the profession. At the same time, when they thought of the chronic complaints of professors of various colleges and of members of the profession in regard to the examinations, the Society might express the belief that there must have been predisposing, if not acute, causes for the recent outburst of feeling. In view thereof the meeting could request the Council of the Royal College of Veterinary Surgeons to appoint a commission to investigate the whole subject, such investigation to be conducted at Edinburgh, Glasgow, London, and other towns, and to be open to any member of the profession.

A vote of thanks to the President closed the meeting.

The Annual Dinner

of the Association was held in the evening, and was presided over by Mr. Burnett. Principal Williams was croupier, and there was a good attendance.

Mr. A. SPREULL proposed "The Royal College of Veterinary Surgeons." He referred to a suggestion made some years ago that the Royal College of Veterinary Surgeons should give them a territorial scheme of redistribution for the seats of membership of the Council. That scheme apparently had been shelved, at all events they had heard nothing about it for a long time. He was afraid they should hear no more about it, unless they stirred up some of the energy which they put in force at that time. But until they got that scheme Scotland would be unrepresented on the Council. Scotland could not at this time return a single representative unless she was aided by English representatives. That was a position which they, as Scotchmen, ought not to submit to. They had practically no vote; until they got their English friends to assist them they were practically powerless. The actions of the Council of late, he understood, had caused a great many heartburnings. Whether he could homologate the action of the Council in that respect, he did not know if it was very judicious to enter upon here. (The CHAIRMAN: "Wish them reformation.") He wished them better lines of conduct for the future. He hoped they would see their way, if necessary, to punish the students in a better way than just now.

Professor M'CALL, who replied, said he thought that they, as Scotch representatives, took as active a part in the management of the affairs of the Council of the Royal College of Veterinary Surgeons as they were entitled to do. They were aware that two or three years ago Professor Williams, Professor Walley, and himself endeavoured to rectify what they thought were some defects in connection with the Examining Board. He tabled a motion that practical examinations should be altered in several respects, and that the number of examiners should be increased. They managed to carry that proposal, but they found afterwards that they had legally overstepped the power that in reality they thought they had possessed, so that matters required to go back to much the same line as they hitherto had run in. Since

then, seeing that things could be no better, and that it would be better to allow things to rest as they were, they had done so. He would not like it to go abroad that they in Scotland were entirely under the thumb of England. He thought that the members of Council were happy to pay attention to anything which Scotch representatives expressed, and he knew that in due time many of the little grievances which they believed they had reason to complain of would be redressed. And he should suggest to the gentlemen present that they take every means of increasing their influence with the Council and Board. They said they were not properly represented, but what did they do to increase that representation? Very few from Scotland attended the annual meeting in London. He thought that was not what it ought to be. The members ought to go up to the annual meeting and give expression to their wishes and ideas, and he was quite sure their English friends would be willing to give them attention. With regard to what had taken place during the last few days he was not inclined to make any remarks. When he, as a member of Council, had an invitation to attend this meeting in London, he said to himself, "Well, I will not go to stand in judgment on any of the students in another college." Perhaps he was wrong. (Professor WILLIAMS: "I am like you.") But to have gone up to London and sat in judgment on students of an Edinburgh College, he had yet to learn that he ought to have done so. He thought it was unfortunate, considering that a new Board was so near being appointed, that things had happened as they did.

"The Scottish Metropolitan Veterinary Medical Society" was proposed by Mr. A. A. MACFARLANE, and the toast was replied to by Professor BAIRD.

Mr. CORNELIUS CUNNINGHAM then proposed "The Kindred Societies." Referring, among others, to the Glasgow Society, he remarked that he believed it was the first Veterinary Medical Society established in the United Kingdom. (Hear, hear.) He expressed the view that the opinion that none except Fellows ought to be members of Council was wrong. (Hear, hear.) He did not see how passing a professional examination showed that a man was fitted to be a member of Council.

Mr. JAMES BORTHWICK replied.

Among other toasts was that of "The Visitors," proposed by Professor BAIRD.

THE WESTERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

(*Continued from page* 443, *vol. xxiv.*)

I am told that along caravan routes in eastern countries, where there is usually a great deal of intermarrying, the same classes of disease prevail. And along the estuaries of rivers in this country cancer is said to be frequent, but, in my opinion more, from the fact that in those valleys the families are all nearly related to each other than from any atmospheric or geological cause. Unhappily, my own neighbourhood is said to be one of those cancer zones.

With in and inbred stock the hereditary tendency to Tuberculosis is great, and, from my own observations, I believe it to be also contagious.

From a noted Devon herd, now broken up, it was found almost impossible at one time to rear a single calf. Some time back my attention was called to a lot of Devons, which had descended from father to son for generations; very little fresh blood had been allowed to intermingle with the herd; the healthy animals still retained an almost perfect symmetry; they had a great aptitude to fatten and arrive at early maturity. But every now and then one would be found with enlarged glands about the throat, others with a persistent short cough and quickened breathing, partial loss of appetite, and a disinclination to lay on flesh, with always a temperature heightened by two or three

degrees. Some of these animals died, and I made *post-mortem* examinations, and found extensive tubercular deposits on almost every important gland and organ of the body.

I advised the owner to get new blood into his herd by introducing a bull from a strange family, which he did; but the disease still prevailed, even in the young stock. At last, by my advice, he decided to get rid of the whole herd, but he did so slowly, weeding out his old animals by ones and twos, and buying new of various breeds, principally rough Devons and Irish, to fill the gaps. These were housed and allowed to intermingle with the old herd in low, ill-ventilated buildings. When, after a time, some of these new animals also became affected in the same way as those which died before, I again made *post-mortem* examinations, and found the disease affecting the various organs just as before. To my mind, it is certain that these were infected by coming in contact with tuberculous animals, mingling with them, breathing the expired air, and perhaps consuming discharges loaded with the spores of the Bacillus Tuberculosis.

The prevalence of this disease among some of the best families of short-horns is but too well known.

It is truly surprising sometimes to find how extensively an animal may be diseased internally, and yet show but little external symptoms. A case occurs to me of a celebrated short-horn bull (I must forbear to mention his name), a sire of some of the best cattle of the day. I only knew him in his old age, but he then appeared in good health, and was a truly fine specimen of his race. On some days, it is true, he would be troubled with a slight cough, but was well nourished—in fact, fat—his appetite good, and his procreative powers all that was desired. About a week before he died, he was seized with what appeared to be a bad attack of Bronchitis, with a persistent high temperature (in tuberculous cattle I have always found the temperature high), from which he died. I made a *post-mortem* examination, and found tubercle of every stage and degree, from the small miliary tubercle to large caseous masses on the pleura, lungs, heart, liver, spleen, peritonium, mesentery, and muscles, all covered with a mass of disease.

I mention this case to show there must be a dead as well as a live inspection, to ensure meat free from Tubercle; and of all diseases, it is the one from which flesh intended for human consumption should be free.

Gentlemen, I hope I may not weary you, but hasten on to briefly speak of Cattle-plague, Pleuro-pneumonia, Foot-and-mouth Disease, Swine Fever, Black Quarter, Rabies, and Sheep-pox. It still happens a few of the latter occasionally reach our foreign animal wharves.

These diseases are all due to specific animal poisons, in all likelihood to microbes of one form or another, some of which have already been discovered, and some cultivated and attenuated, and can be employed protectively. These specific poisons exert their greatest influence on the alimentary canal in Cattle-plague and Swine Fever; in the lungs in Pleuro-pneumonia, which in this disease will sometimes weigh as much as twenty or thirty lbs.; the mouth, feet, and secretion of milk, in Foot-and-Mouth disease; the brain fauces and salivary gland in Rabies; the skin in Variola Ovinæ, and usually the voluntary muscles in Black Quarter. The local symptoms are the manifest ones, and are generally outlets for the virus. From what is now known of these specific animal diseases, there can be no doubt but the virus does exist in the blood of one and all of them. Professor Coleman was the first to make proof of a most valuable discovery in this direction. He produced Glanders in the ass by transfusion of the blood from the carotid artery of a glandered horse, and Dr. Sanderson produced Cattle Plague by inoculation with the serum from the blood of an animal in the earliest stage of the disease, the only symptom discoverable being a rise of temperature.

If, then, the blood of these animals is full of specific poison, all the tissues of the body must be more or less impregnated with it also. Knowing these facts, it is clear to me that all meat so contaminated is unwholesome, and quite unfit for the food of man, and must therefore be condemned.

In my opinion no animal at, or about, the time of Parturition, or suffering from Parturient Apoplexy, can be wholesome food. At such a time there is always a more or less diseased condition of the nervous system, and also a great probability, as was so ably pointed out in the very last essay read before this Association, of material, and often enough morbific material, becoming absorbed into the system from the uterus. In the case of Parturient Apoplexy there are also other dangers, for both secretion and excretion are almost suspended, leaving much in the blood which should be eliminated. Digestion is arrested, the food in the stomachs decompose rapidly; in all probability some of the liquid portion of the decomposing mass becomes absorbed into the circulation, and so taints the system.

Notice the violent diarrhœa which always follows recovery, Nature's method of removing the poison from the body. Local congestion of muscles and organs are also nearly always present. The fætor from the eructations, and stench from *post-mortem* of the stomachs should be enough to convince the most sceptical that the flesh of such an animal is totally unfit for food.

It may be in times past, the veterinary surgeon, in order to escape somewhat the responsibility of losing a sick patient, has recommended its slaughter for food. The whole blame must not be cast on the veterinary surgeon; for it has been thrust on him by the custom of the country, and the overbearing of his client when a patient has died.

A client of mine kept a butcher, in addition to the attendant under my orders, by a critical case the whole of one night, with instructions to slaughter in case symptoms were exhibited of approaching death. But it is high time for us, as pathologists, and a body of men with a knowledge of physiology, to set our faces dead against such a system. Better far, and the public will value and appreciate us more, if we make a firm stand, and do as a practitioner, and a near friend of mine, did a short time since. He was treating a cow for Parturient Apoplexy, on his arrival one morning at the farm, he was told by his client that he was sure the cow would die, and he had made up his mind to kill her, and send her to London. The veterinary surgeon at once said such a cow was not good for food, and if she were killed and sent away, he would at once inform the authorities. In the face of this the farmer was afraid to kill his cow; he asked the veterinary surgeon to go on treating her, and in the ends he made an excellent recovery.

Animals which suffer from slight or acute ailments, such as colds, inflammation of the brain or viscera, the formation of abscesses in the lungs or any other part of the body, cannot really be said to be wholesome food; even in the early stages of these diseases there is an abnormal rise of temperature, often great. Effete, morbid, and deleterious, products are much more rapidly thrown into the blood and absorbent system, and retained there, than when the animal is in health. We are told by physiologists the blood goes the round of circulation every few seconds, and that a substance introduced into the jugular vein can be detected in a remote part of the body almost immediately after. Thus we see if diseased products enter the circulation from an abscess, an inflamed or diseased structure, at one point, within a few moments after the cells and tissues of a distant part may be bathed in this perverted blood plasma, and we know the cells are influenced, and receive their characteristics, and partake of the quality of the plasma flowing to them.

Parkes, in his splendid work on "Practical Hygiene," says: "We should conclude from general principles that as all diseases must affect the compo-

sition of flesh, and as the composition of our own bodies is inextricably blended with the composition of the substances we eat, it must be of the greatest importance, for health, to have these substances as pure as possible. The composition of muscle must exert an influence on the composition of our own nitrogenous tissue."

Gentlemen, I maintain an animal in ill health cannot supply healthy structures for food, any more than a potato which has had its starch cells destroyed by fungi, or wheat whose granules have been substituted for the vibrio tritici. The same remarks will apply to animals which have received accidents, unless they are slaughtered almost immediately after such accident, before there is a rise of temperature, or inflammation has set in. In the case of rotten sheep and a few diseases which will come under the same head, although, perhaps, it may be contended that no deleterious material does exist in the blood or tissues, yet we well know the nutritive value of the meat is enormously reduced. To sell, therefore, this class of meat to the unsuspecting buyer as sound food is to my mind nothing short of fraud.

Animals intended for food should be carefully inspected whilst alive, immediately before slaughter, and should present all the characteristics of good health, the signs of which are so well known to you all that I need not dwell to describe them.

After slaughter the viscera must also undergo an examination. I attach the greatest importance to this part of the work, and I never neglect to look at the various organs, if they are obtainable, when inspecting meat. The heart should be free from blood stains, the lungs of a bright pink colour, floating freely in water, and should weigh from seven to eight pounds in ox. The liver must be free from recent disease; the spleen should be sharp edged, grey externally, and dark red within; the stomachs and intestines free from all blotches and traces of inflammation.

The one half of the carcase should not be darker than the other; and should not pit on pressure, as it does when gases have escaped into its tissues. Sound flesh, fitted for human food, is firm to the touch, and the fat partakes of the same character. It should not be moist, or sodden from excessive moisture. The marrow should be light rosy red. Care should be taken to observe that there are no hæmorrhagic spots, which often arise from blood poisoning. The internal fat of good meat is never speckled with these blood points. Well fed flesh should be marbled in appearance—neither too pale, nor too dark. The flesh of young animals is paler than older. The odour of sound meat is not disagreeable, somewhat sweet and faint; any deviation from this should arouse suspicion. Where the odour is of a compromising kind, putrefaction has set in, and it may indicate the presence of disease which has caused the earlier onset of decomposition. By chopping a piece of suspected meat and placing in warm water, the bad odour will be intensified. In dealing with large joints, a skewer or knife may be plunged into the flesh and tested for the odour; it will also show different points of resistance if putrefaction has set in.

Putrefying meat is of course absolutely condemned. Some difficulty may here arise to the inspector, as cheese actually moving is eaten with impunity, and it is the fashion to have game more or less high. There is however a vast difference betweeen putrid meat and high game; it is suggested the difference is due to two distinct germs producing two distinct conditions.

Gentlemen, I now come to the conclusion of my paper. I have endeavoured to show that the Veterinary Surgeon is, by his education, the proper person to be the meat inspector; that, under our present system there is a wholesale traffic in diseased meat. Just one word as to the remedy for the evil, and I have done. Under the Food Adulteration Act, there are a few articles which the vendor may sell as a mixture, provided it is plainly labelled

as such; and it is incumbent also that he tells the purchaser, at the time of sale, that it is an adulterated article. Now if meat from sick animals must be sent to the market, I would compel the vendor of the carcase of every animal which was slaughtered, suffering from any ailment or disease whatever, to be labelled; and the label should state plainly the disease from which the animal suffered. This is all that is required, for there is not the slightest doubt that, where doctors and veterinary surgeons have hesitated, the public would at once decide, by having nothing to do with it, even if compelled to live on dry bread.

Mr. PARSONS remarked on the merits of the paper, and said that undoubtedly a vast amount of meat was offered for sale, and went away in a badly-diseased state.

Mr. CHASE referred to a case of Parturient Apoplexy which was slaughtered and exposed for sale with his sanction. The Medical Officer of Health seized the carcase and summoned the butcher. The magistrates, however, upheld his (Mr. Chase's) opinion and dismissed the case, much to the annoyance of the editor of the *Lancet*.

Mr. COLLINGS thought the severity of Rigor Mortis was an indication of the state of the animal before slaughter, and should always be taken great notice of.

Mr. HEATH said we cannot surpass the system of the Jews, viz., the inspecting of each animal separately before slaughter. He strongly condemned tubercular animals for food, and thinks the disease may be conveyed through milk. He quite agreed with the whole tenor of the essay. He thought all slaughter-houses should be officially inspected. He hoped the paper would be read by the general public, as well as the profession.

Mr. J. PENHALE was of opinion that the veterinary surgeon was the proper person to be the meat inspector. Tuberculosis, he considered, should be at once scheduled as a contagious disease. In Austria, animals killed for cats' and dogs' meat were immersed in petroleum to prevent their being afterwards eaten for food. He thought this system might be adopted with benefit in this country.

Mr. OLVER said undoubtedly all slaughter-houses and butchers' yards should be regularly inspected; but it would be difficult for the veterinary surgeon to carry out the law in its full severity in every instance. He did not go quite so far as the essayist, in the condemnation of the meat of animals slaughtered whilst suffering from slight ailments.

Mr. ROACH thought that where the flesh was solid and firm to the touch, and of the proper colour, it was an important indication of health, and in such a case there was no course open to the inspector but to pass it for food.

Mr. R. E. L. PENHALE remarked that the traffic in diseased meat was so extensive and general, that it would be difficult to stamp it out entirely. He was informed that animals suffering from disease in the country were often killed and sent to London under the name of cats' and dogs' meat, but the meat, when it arrived at its destination, if at all good-looking, was carried to the butcher's stall and sold for human food.

Mr. BURTON was of opinion that only a small percentage of animals were perfectly healthy; therefore he could not agree with the essayist in such wholesale condemnation. The line should, however, be drawn somewhere, for the consumption of animals suffering from Quarter Evil and the such-like, could not really be countenanced.

Mr. PENHALE, jun., was in sympathy with the whole gist of the paper, and the sooner the traffic in diseased meat was put an end to the better.

Mr. COLLINGS proposed, and Mr. HEATH seconded, a vote of thanks to Mr. Penhale for his paper, and at the same time expressed a wish that it might appear in the professional journals *in extenso*.

Resolved to hold the next meeting in Exeter in September.

After the meeting the members dined together. The usual loyal and professional toasts were duly proposed and responded to, and a very enjoyable evening spent. W. PENHALE, *Hon. Sec.*

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

THE usual quarterly meeting of the North of England Veterinary Medical Association was held on Friday, May 27th, in the County Hotel, Newcastle-on-Tyne, the president, Mr. D. Dudgeon, Sunderland, in the chair.

Present: Messrs. Gofton, North Shields; Mitchell and G. R. Dudgeon, Sunderland; Temple, Chester-le-Street; Nesbit, Fence Houses; Awde, Stockton; W. Grieve, Blaydon; Wm. Hunter, Moore, Hancock, Gresty, H. Hunter, and the Secretary, Newcastle-on-Tyne.

Visitors: Professor McFadyean, Edinburgh; Messrs. J. R. Charlton, Newcastle; and Dotchin, student.

The minutes of the last meeting were taken as read.

Letters of apology were received from Professor Robertson and Walley; Messrs. McGregor, C. S. Hunting, jun., C. Stephenson, G. Elphick, Mulvey, Thomas Greaves, Foreman, Peele and Farrow.

Mr. D. DUDGEON proposed, and Mr. H. HUNTER seconded, that the annual dinner of this Association be held during the visit of the Royal Agricultural Society, and that Messrs. Dudgeon, H. Hunter, Elphick, Moore, Nesbit, Gresty, Gofton, Hancock, and the Secretary form a committee to make the necessary arrangements.

Carried unanimously.

Professor MCFADYEAN then read the following paper:—

MR. PRESIDENT AND GENTLEMEN,—I am proud to have the opportunity of appearing before this society to read a paper on "The Education and Examination of Veterinary Students." I do not intend to offer any apology for my own presence here, or for the subject I have chosen. I am not so foolish as to think that I could teach the members of this society anything. I may, however, be the instrument to direct your attention to a subject that must always be of interest and importance. It is not long since some of us were students ourselves, and the more recent that is, one can the better appreciate the claims of students to have a fair and properly-conducted examination. But apart from that, the progress of our profession is intimately bound up with the methods of educating and examining our students.

For the past four years—the period during which the present Board of Examiners has been in office—the results of the examinations have been such as to warrant the conclusion that there is something radically defective in connection with the present system of veterinary education or examination. The result of three consecutive examinations, taken at random during the period referred to, will illustrate the point. The aggregate number of students who presented themselves for the three consecutive examinations beginning with July, 1883, was 141, and of these only fifty-five, or less than forty per cent. passed. These figures embrace the total number of students from the two Edinburgh Colleges and the Glasgow College who presented themselves at these dates for the "final" examination. The results of these examinations are perhaps a little more adverse than the average of the whole period referred to, but it is within the mark to say that the proportion of rejections in the "final" examination has been more that fifty per cent. The figures given do not include the students who presented themselves from the London Veterinary College, the only other college in Great Britain, but the inclusion of these would not materially affect the result.

It is worthy of notice that this excessive proportion of failures came suddenly into existence with the present Board.

In searching for an explanation of this excessive proportion of failures, one might expect to find it in—

(1) A defective calibre of the students, either in mental capacity, or in respect of general education, which would prevent them from profiting fully from the training afforded at the veterinary colleges, assuming that to be up to the mark.

(2) Defective teaching at the veterinary colleges; or

(3) A defect in the system of examination.

Calibre of the Students.—On *a priori* grounds this is not likely to afford an explanation, because veterinary students at the present time are drawn from the same sources as students of other professions. The students of the present day are drawn from a distinctly higher grade of society than were those of former times, and with this there is observable a marked advance in respect of general education. Besides, a preliminary examination in general knowledge of a uniform standard for all the colleges is now enforced by the Royal College of Veterinary Surgeons. Under this head may be noticed what might be suggested as an explanation of the high percentage of rejections, viz., that the students, although not defective in mental calibre or general education, are indolent and careless, and thus do not profit to the extent that they might from the teaching afforded at the colleges. But the teachers are alone able to say whether this is the explanation, and their answer is in the negative. Moreover, another consideration will prove that this cannot be the explanation. At all the colleges it is, I believe, the custom to refuse certificates to such students as have been indolent and careless, and such men are therefore seldom or never permitted to come before the Examining Board. I may here say, however, that teachers occasionally feel it difficult to carry out this rule, for sometimes a student put under this prohibition will appeal to instances where under the present Board men of very inferior calibre have fared better than their fellow students who were far ahead of them.

The Teachings at the Colleges.—It appears to me that there are two respects in which the teaching afforded by the veterinary schools of this country is defective, or, rather, there are two sets of circumstances that combine to render the teaching less efficient than it would otherwise be.

Firstly, there is the poverty of resources of the veterinary colleges. This entails evil in several ways. In the first place, the colleges are under-manned. For example, in each of them there is but one teacher for veterinary medicine and surgery. In other cases the whole time of the teacher is not devoted to the subject or subjects that he teaches, but is partly spent in practising the ordinary duties of our profession. Again, the salaries attached to many of the appointments—indeed, I may say to all of the appointments but one in each school—are totally inadequate to attract men of high general and scientific attainments. The bad effect of this is obvious. Teachers too often either hold their posts as bye-appointments, or they do not prosecute the study of their own particular branch as they would do if it were worth their while to devote their lives to it. It is too much to expect that there will often be found men who, from a pure love of the subject, sacrifice their chances of rising to eminence in veterinary practice or in some of the other professions. These facts are plain to anybody. What is their remedy? Will the time ever come when each staff will contain a teacher who will devote the whole time to investigating and teaching the morbid anatomy of the domesticated animals, when the teaching of veterinary medicine and veterinary surgery will be divorced, and when, moreover, there will be separate teachers for the diseases of horses, cattle, dogs, pigs, and sheep. The time may come, but I fear it

will not be soon. It appears to me that there are two possible methods by which our teaching staffs might be made, perhaps not perfect, but at least as competent as those of the best equipped medical schools in this country. If, for example, there were a reduction in the number of teaching colleges, the financial position of the others would be correspondingly improved. I mean that there would be money to found new lectureships, and to remunerate all the teachers so as to attract really good men for the various appointments; and in time even better men than the best that could be had now would be obtained, for young men would, from the outset of their career, make it their aim to qualify themselves by special study for such appointments. I fear, however, that to this advantage there might be a countervailing disadvantage, for the multiplicity of schools is not an unmixed evil. I am perfectly sure that if there had not been two rival schools in Edinburgh, the teaching would have been less efficient than it is at the present day. Some degree of competition and rivalry is just as good for teaching as for trade. I hope, for that reason, that there will never be fewer than two veterinary colleges in Great Britain.

Another method by which the schools might be put on a more satisfactory footing would be by the aid of Government grants. I think it is a reproach to the intelligence of stock-owners in this country that veterinary teaching has been left to its own unaided resources. However, at the present time the very fact that four veterinary colleges exist by their own resources would secure a certain refusal to any application for Government aid.

Another aspect in which the teaching of the college is, and must in the nature of things ever remain, defective, is in respect of clinical teaching. I think that to the student who is determined to avail himself to the utmost of his opportunities, the colleges furnish clinical material from which he may acquire a fair practical knowledge of equine diseases. Perhaps that is true of canine practice, too. It certainly, however, is not true of the diseases of cattle, sheep, or pigs. I know there is a class of men in the profession who regard a knowledge of the diseases of these last-named animals as of very secondary importance. In general that opinion is held only by those who have not that knowledge themselves; and since these animals constitute a far greater item of the national wealth than horses, it cannot be denied by any sensible reflecting person that a knowledge of the diseases of these animals on the part of the practitioner when he starts in life is of primary, and not at all of secondary, importance. To show how defective the resources of the schools are in this respect, I will illustrate how much clinical work in connection with cattle diseases a student may see during his curriculum in Edinburgh, and I believe he is as favourably circumstanced there in that respect as he would be in Glasgow or in London. I do not say he is any better. Or, perhaps, the best, as being the shortest and most forcible way of illustrating this is to tell what he will not see, and what from the very nature of things he can never be expected to see. Well, he never sees a case of Red-water, or Black-quarter, or Milk Fever, very few cases of Parturition, and few, if any, cases of stomach derangement. I say it is in the very nature of things that he should not see such cases, for either we never see such diseases in cities, or if they do occur the animal is promptly slaughtered. Here is a great patent defect in the teaching afforded by the schools. How is it to be remedied? Very simply. Let the student go for his lectures on those subjects to the practitioner, who has the material for teaching him. But, says somebody, that is just apprenticeship, which the schools have always persistently opposed. But it is nothing of the kind. By compulsory apprenticeship was meant in the first place a period of pupilage before a student had been grounded in the elements that he must know before he can take the benefit out of clinical work. Moreover, the very fact of prescribing a cut-and-dried

plan of apprenticeship would lead an intending student or his guardian to think that it was all the same where a pupil was apprenticed, so long as it was to a duly qualified practitioner. For example, suppose the apprenticeship clause had been sanctioned in the recent application for a Supplemental Charter, the men who would have had most pupils would have been the practitioners in London, and other large cities, the very men who are as short of variety in their clinical material as the colleges themselves. Let the student go to college and get grounded in the subjects of chemistry, botany, physiology, anatomy, materia medica. Let him, in fact, pass his first and second professional examinations. While he is doing this, let him during the intervals of session, amounting to four or five months in the year, go to the practitioner who can show him the clinical work that he stands most in need of seeing. If he is young, and has not been accustomed to animals, let him, after he has passed his second examination, arrange to go for a year with such a practitioner. Then let him return to college, and complete the prescribed period of study before presenting himself for the final examination. That is, I am happy to say, what a great many of our students are now doing. We seldom or never send up for his final examination a student who has not supplemented his collegiate studies by seeing clinical work with a practitioner. Some, however, do not follow this course, but rely solely upon the college curriculum, and I am bound to say that their average success at the final examination is just as great as with those who have taken the course that any one would think must have made them better qualified. I have known students, who had seen considerable periods of practice with eminent practitioners in both town and country, to be repeatedly rejected, while others of no greater ability or application, who had hardly seen a day's practice outside of the college, appeared to pass with ease.

I have now stated what weak points I see in the teaching afforded by the colleges. Very possibly, as being I may say inside a college, defects that are obvious to outsiders may be unseen by me. If so, the "candid friends" outside, of whom the teachers have generally enough, may be left to draw attention to those I have missed, and I will therefore pass on to inquire whether there are any defects in connection with the examinations as at present conducted.

Suppose that we had a clean sheet on which to draw up the rules and regulations for the appointment of the men who are to examine our students, I take it that we should regard it as a primary qualification for appointment as examiner, that he ought to have a thorough knowledge of the subject on which he is to examine. I can hardly conceive of any person denying that. Still, I am sorry—I am ashamed—to say, that I have known members of our profession, some of those whose voices are heard loud and frequent in our Council, to say that a special knowledge of the subject was not necessary on the part of veterinary examiners, or for that matter, I suppose, on the part of any examiner, and that any of us could by a little reading up examine veterinary students on such subjects as chemistry, botany or physiology. I could not say anything to convince any one who may hold such views as these. I will take it for granted that the proposition that I started with is unassailable, viz., that a special knowledge of the subject is an essential qualification for appointment as examiner. It used to be so regarded both in theory and in practice. Prior to the appointment of the present Board, we invariably had specialists to examine on such subjects as chemistry, botany, and physiology, and histology, and I reflect with pride on the fact that I was catechised on these subjects by men whose names are known over the civilised world for their scientific eminence. That I am sure is a sentiment felt by everyone here. Why, I ask, was the rule hedged round by any qualification to the

effect that a certain proportion of the examiners should be veterinary surgeons, and worse than that, why in future appointments must every examiner be a veterinary surgeon? Well, I can imagine only two replies that any one defending the recent charges might make. First, he might say the limitation is after all no limitation, for we can find just as eminent men in each subject inside our own profession as out of it. I say, I can imagine somebody saying that, but it is, I confess, a sketch of the imagination. Or, again, I can fancy some one saying—we may sacrifice a little in the way of special knowledge, and keep the good things of the profession for our own members. But will any one put the matter on so base a footing as that? Is the efficiency of the Examining Board, the interests of justice to the students, the interests of stock-owners and the dignity of the profession at large, to be jeopardised in order that a few pounds more may annually be directed to the pockets of some favoured ten or twenty members of our own profession? Let no one believe that this is a trivial matter. It is a vital matter. No man can be an efficient examiner on any subject unless he is competent to teach that subject, unless, in fact, he is a specialist on that subject. If an examiner is not a specialist, there is far greater danger of an ill-informed student getting through, and there is far greater danger of a brilliant student getting rejected. I could, from recent experience, give many forcible examples of both evils. There is overwhelming testimony that these things occur far oftener now than formerly. On the one hand, the teachers complain that they cannot now be sure of their best students getting through; on the other hand, it is said by outsiders that incompetent men are being licensed. I believe both statements to be true. Is it not a tremendous injustice that a student who answers according to the teaching of his college should get no credit for his answer, and perhaps be relegated to a long period of further study because there is a conflict of opinion between his teacher and the examiner? I do not say that the teacher is bound to be right, but he is surely as likely to be right as the examiner, since in nearly every case the teacher is a specialist while the examiner is often not.

But the evils that I have indicated as likely to follow the appointment of examiners who are not specialists are not the only evils. The system tends to degrade the teaching. For example, I have regularly in teaching my own class, while showing them how the horse's body is constructed by nature, to advise them to reply otherwise to please the examiner, and I know that my colleagues have to do the same. This is a matter about which I am determined to cry out, and for what I have already done in that way I have been called no end of bad names. But by-and-by those who are so irate may begin to see that the use of bad names is not argument. I have not yet solicited from those who defend the present system a statement as to where my contention is wrong. I want them to state—I mean I want these examiners to state—for it is they who are the champions of the system—whether they take up the ground that they *are* specialists in the subjects in which they are examining, and if so, by what method they made known to the profession that they had a special knowledge of such subjects. For example, I ask, is Mr. Augustus Taylor a physiologist? Is Mr. Walters a botanist? Is Mr. Banham a pathologist? Or is Mr. Vaughan a chemist? I put it to this assembly of members, did any one of you know—and you had the ordinary channels of information on such subjects—did any of you know, prior to the date when these gentlemen were appointed, that they had any better qualification for appointment as examiners than one of yourselves? Had any one of them published a single original observation on any branch of the subject that he was appointed to examine on?

Take again the subject of anatomy. I have said publicly and privately

and I shall continue to say it as long as I live, however much I may be vilified for it, that I have a right to demand that my students should be examined by a practical and not a mere theoretical anatomist. Is that a crime, or is it even an error? Am I claiming a favour, or something that would promote my own interests to the detriment of the profession? Would it not, on the contrary, be the best guarantee that I should teach thoroughly and practically? I have been given to understand, however, that I must not say that any more, and in punishment for having publicly said it Mr. Fleming has decreed that I am in future to be excluded from the privilege of hearing my own students examined. Somebody, apparently, has deluded Mr. Fleming into the belief that he is an anatomist. Well, I respect his opinion, but I join issue with him; for I maintain that to be an anatomist one must devote one's self wholly or mainly to the practical study of anatomy. I suppose in the same way Mr. Fleming is a surgeon, a physician, a pathologist, and an obstetrician.

The next grave defect that I wish to direct attention to in connection with the constitution of the present Board of Examiners, is that general members of it hold double appointments. Now, that is a thing so pernicious and indefensible, that I think I should be justified in saying that it is a scandal and an act of jobbery, against which the profession should make its protest heard. Can any one explain why such a thing was done? Why does Mr. Vaughan examine both on comparative anatomy and on chemistry? And why does Mr. Fleming examine both on anatomy and pathology? Will anybody dare to say that these gentlemen were appointed to the double posts because there was nobody even inside the veterinary profession equally competent to examine in at least one of these subjects? Now, suppose we bring up the one argument that has even been advanced in favour of reserving these appointments for members of the veterinary profession—is it fair—is it seemly—that one man should, when there are so few good things, take two all to himself? I do not for a moment intend to imputeiany unworthy motive to any of the gentlemen holding these double appointments, and drawing double fees. I will concede that they accepted them from the honourable belief that such good men as themselves could not be found if they refused. It will, however, surprise me very much if the body of the profession stands that kind of thing much longer.

A third defect in the present Board is that, in the majority of cases, there is only one examiner to each subject. What can be the reason for such an arrangement? It cannot be because any one contends that there is likely to be more efficient, or as efficient, examining with one examiner as with two. Perhaps you think it is on the ground of economy. Let us see. From the annual report furnished to each member of the profession a month ago, it appears that during the past year the Board examined 716 students at a cost in examiners' fees and expenses of £1,575 1s. 8d. Was not that a most enormous sum to spend on the examination of such a number of students, and with only twelve examiners? Truly it is a fine thing to be appointed a veterinary examiner. Suppose you divide £1,575 by twelve. That gives about £130 to each examiner. But remember the double appointments. I think I am within the mark in saying that Mr. Fleming's own share of that is nearer twice £130. How does that square with the economy theory? This is a subject upon which I have made some inquiry, with the view of finding out the comparative cost of examining other students. Here is an illustration. In the Faculty of Medicine in the University of Edinburgh—the greatest medical centre in Great Britain—the examiners are paid a fixed salary of £75 per annum. For this sum each examiner examines about 500 students. He subjects them, not merely to oral examination such as our students get, but he has also to examine a written paper which the student takes two hours to write. I may

add that these appointments are among the most coveted honours of the medical profession, and that the most eminent men in London, Manchester, Dublin, or elsewhere, are proud to get them. Now, surely, what is sufficient remuneration for the most eminent specialists of the medical profession, might suffice in the case of our examiners. But apparently no. Honour with us is counted no remuneration—all must be in hard cash. But seriously, gentlemen, does not this amount to jobbery? How long will the profession countenance such a scandal? Will it not speak out, and insist that the full complement of examiners—two to each subject—should be appointed as it used to do?

The last defect that I am going to mention—the last that time will allow me to speak of—is this: It appears to me to be a very unsound principle that an examiner should be also a member of Council, and for this reason, that it makes the Examining Board, in a sense, an irresponsible body. Theoretically, of course, the Board is responsible to the Council. But take the present time. Out of the six members on the final Board four are members of the Council. In any case where it became necessary to review the conduct of these examiners at the Council, the influence of these four men (and to say that they will support their own interests is to say that they are human) would generally be enough to carry the vote. The teachers have been told lately that the proper place to direct their complaints to is the Council. An excellent arrangement, no doubt, to enable the examiner to adminster a snub to the teacher who impeaches him. And there are yet other objections to examiners retaining their seats at the Council Board. For example, when the time for the election of a new Examining Board comes round the influence of the examiners in the Council may be exerted for months beforehand to secure their own re-election, although equally, I will not say better, qualified men may be candidates for the appointments. No one can deny the force of this objection except on the ground that the present constitution of the Examining Board is perfect, and that therefore there can be no need to suggest any alteration that might conflict with the interest of those at present holding office, or that those who at any time may have a seat at both the Examining Board and the Council Board will be above the commonest frailty of human nature, what is more true than that

> "When self the wavering balance shakes,
> It's rarely right adjusted."

I have very good reason for believing that already every influence that the present examiners, who are members of Council, can bring to bear is being put into force to secure their own re-election; and I know that it was by their influence that every effort to amend the present Board since its appointment has been frustrated.

And in this connection I am tempted to ask: Is the profession going to be contented with twelve examiners where there ought to be twenty, and with an arrangement that appears likely to make these examinerships virtually life appointments? It ought to be a great and a much coveted honour to be appointed one of our examiners, and if so why is this honour not allowed to circulate? Judging from the experience of recent years, one might think that we had just one man who was fit to fill the office of President, that there were in all the profession just twenty-four men fit to act as members of Council, and that on some subjects there is just one individual among our whole number who is competent to examine.

And now, Mr. President and gentlemen, I am going to stop. I am proud to have had the opportunity of addressing you. On many of the points I have raised I have spoken strongly because I feel strongly. I have no reason, however, to expect that everyone here will take just the same view as I do,

and if any one thinks that I have advocated anything, or said anything opposed to the best interests of our profession, I hope he will use his right to speak as freely as I have used mine.

A good discussion followed, in which most of the members took part, and it was unanimously agreed to forward the following resolutions to the Council of the Royal College of Veterinary Surgeons, that this society is of opinion—

1st. That the number of examiners should be increased to at least two for each subject.

2nd. That as far as possible each examiner should be a specialist in the subject on which he examines.

3rd. That the examinations should be both written and oral.

4th. That in no case should one man examine on two different subjects.

5th. That in the event of a member of Council being appointed an examiner he should resign his seat at the Council.

6th. That the examiners be paid at a fixed salary, irrespective of the number of students examined.

Mr. G. R. DUDGEON proposed, and Mr. MITCHELL seconded, a vote of thanks to Professor McFadyean, which was supported by Messrs. Gofton, Moore, and Hancock, and carried unanimously.

Mr. MOORE proposed, and Mr. H. HUNTER seconded, a vote of thanks to the Chairman, which brought the meeting to a close.

NORFOLK AND EASTERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE above Society held their half-yearly meeting on Wednesday, February 23rd, at the Bell Hotel, Norwich, the President, C. A. Banham, Esq., Cambridge, in the chair.

Members present.—Messrs. Auger, Gibson, Golden, Gooch, Hammond, Howard, Newson, Overed, Santy, Shipley, Urquhart, and Wragg.

Visitors.—Colonel Combe, Lieutenant Welsh, Messrs. Pilling, Rowe, and Rutherford.

Apologies from several members and friends regretting their inability to be present were read.

Election of Officers for Ensuing Year.

Mr. SANTY proposed, and Mr. NEWSON seconded, that Mr. W. Shipley (Yarmouth) be elected President for the ensuing year, which was carried unanimously.

Messrs. Santy, Banham, and Wragg were elected Vice-Presidents.

The Secretary having sent in his resignation, in consequence of pressure of business not allowing him time to fulfil the duties,

Mr. OVERED proposed that the resignation be accepted, and that a vote of thanks be accorded to him for having undertaken the duties so long.

Mr. SHIPLEY seconded the motion.—Carried unanimously.

Mr. SANTY proposed, and Mr. OVERED seconded, that Mr. Urquhart be elected Hon. Secretary.

New Members.

Mr. Urquhart—proposed by Mr. SANTY, seconded by Mr. OVERED.

Mr. Francis Golden—proposed by Mr. SHIPLEY, seconded by Mr. OVERED.

The next meeting was arranged, on the motion of Mr. BANHAM, to be held at Yarmouth.

Presentation of a Stained-glass Window to R.C.V.S.

Mr. SANTY proposed, "That this Society join with the West of England, Southern Counties, and the Lincolnshire Societies to raise the sum of £60 for the purpose of presenting a stained-glass window to R.C.V.S., as a memorial of these four Societies." For this purpose he proposed that this Society grant a sum not exceeding £15.

Mr. OVERED, in seconding the motion, reminded the members that it would be unwise to commit themselves too far; but after being informed that their share would only be £15, he thought the Society could well afford that sum, especially for such an object.

Mr. BANHAM, in supporting the motion, said that it was not only beneficial to decorate the new home, but he thought those who would probably use it most were the members who lived nearest London, and consequently it was more their duty to undertake this work than any others; he should therefore have great pleasure in giving the proposition his most hearty support.

Vote of Confidence in Existing Examining Board.

Mr. WRAGG said he had no doubt but that most of the members had heard of the scandalous behaviour of the students of the Old (Dick's) College at Edinburgh during the late examinations, and he wished the meeting, if they thought fit, to pass a vote of confidence in the Examiners. He therefore proposed, "That in the opinion of this Society it is necessary that the Council of R.C.V.S. should do all in their power to protect the Examiners from such insults and violence as they were subjected to in Edinburgh, and also that this meeting passes a vote of confidence in the existing Board of Examiners."

Mr. SHIPLEY seconded the proposition, and thought that the conduct of the young men at Edinburgh was anything but creditable to aspirants to the veterinary profession. That they had any reason for behaving in such a manner, he did not for a moment believe, for more generous and kindly-disposed examiners could not be found than those which constitute the present Board.

Mr. OVERED, in supporting the resolution, said he thought that our officials should be protected from insult and injury. Theirs was, no doubt, an unpleasant task, and one which required firmness and accurate discrimination; but that any of the present members did more than exercise their powers in the right way, he could not believe. He regretted, for Professor Walley's sake, that such a procedure should have taken place, for he believed that gentleman was a true friend to the profession and wished for its welfare.

The resolution was put to the meeting, and passed unanimously.

Post-mortem Specimens.

Mr. Fruner, of Clare, sent a dried specimen of an urinary bladder taken from a mare who, to all appearance, during life never suffered any inconvenience from its malformation.

The specimen presented formed two distinct bladders, opening by separate mouths into one outlet, one of the sacs having a small saccula projecting from it. The members said they had never seen such a malformation before.

Mr. ROWE, of London, exhibited a tumour which he removed from the mamma of a bitch a few days previous, the only thing remarkable about it being its size and weight.

Mr. OVERED exhibited a portion of the cuticle which became detached from a cow he believed was suffering from *Purpura Hæmorrhagica*. The inner side was stained here and there with bright scarlet patches, varying in size from specks to one-and-a-half inches in diameter. One piece was at least a foot square, and several smaller pieces. It resembled what would be expected to follow upon the application of a severe blister.

Mr. RUTHERFORD then read the following paper on

SOUTH AFRICAN "HORSE SICKNESS."

MR. PRESIDENT AND GENTLEMEN :—Permit me to thank you for the honour you confer upon me in allowing me to bring forward the following paper on a subject, which I am afraid is meagre in detail, and of but little interest to practitioners here, but which I hope may be of some use in enlightening our ideas upon the subject, by evoking some discussion.

Understand that "Horse Sickness" is a term applied to different forms of a certain disease occurring in that country; not to diseases in general.

It is thought by many people to be a disease or curse special to South Africa—one of the Egyptian plagues handed on to posterity; and in consequence they look upon it as something to be borne without complaining, or without even trying to adopt preventive measures, so frequently laid before them by Mr. Wiltshire, Colonial Veterinary Surgeon, Natal, and by others—measures which might save many a valuable life. That it is a specific fever of an anthracoid type I have not the slightest doubt, and the course of the trouble points to it being Anthrax Fever.

Mr. Wiltshire has found the characteristic *Bacilli Anthracis* in scores of cases in the spleen and blood of horses affected, and in certain exudations common to that trouble. Symptons and *post-mortem* appearances point to it being of an anthracoid nature, bearing much the same relation to Anthrax Fever proper, that some of the forms of symptomatic Anthrax do.

Many early and modern writers have described Anthrax, a disease known in Asia Minor during the siege of Troy; in the early and middle ages in Great Britain, men, horses, and cattle, suffered from it. In France millions of francs were lost annually by the scourge; and as "the dreaded 'Jaswa,' it appears periodically in Russia and Siberia, where it decimates so many troops of horses and herds of cattle, that military force has to be employed to form cordons around infected centres, and to carry out precautions to prevent its spread." Extracts from "Sanitary Science and Police" (Fleming). In Germany and India it is common, going by the name of Miltzbrand in the former, and Loodiana in the latter country.

It occurs in every country, polar and tropical, and attacks both wild and domesticated animals. In England, I believe, a few cases occur annually amongst horses in one or more counties; and Splenic Fever is not uncommon amongst cattle. English, Syrian, and other Eastern horses imported into Egypt during the war of 1882 suffered from it; and it is known all over South Africa, attacking old and young, both sexes, and all breeds of horses and mules, whether colonial or imported. Numbers of men die yearly from it in Russia, owing, I believe, to their being inoculated whilst handling infected carcasses; and in England we meet with it as Malignant Pustule amongst wool sorters.

The world has been startled within the last fifteen years by the important discoveries as to the origin and transmission of Anthrax, made notably by Pasteur, Koch, Toussaint, Greenfield, Burdon-Sanderson, and others, who have shown that Anthrax results from the presence in the system of the *Bacilli Anthracis*, organisms which upset the equilibrium of the blood to a more or less marked degree; and that the amount of alteration of the blood and localisation of the poison (if I may use the term) depend upon the degree of virulence of the bacilli, and the method of inception.

It has been clearly demonstrated by Pasteur and Tyndall that germs of different sorts, the *Bacilli Anthracis* amongst them, float about in the atmosphere in clouds, are found in water in a state of suspension, and that germs are much more prevalent in the air of some places than of others; also that some of those floating in the atmosphere are in a partially developed or dormant

state, in which they are capable of remaining for a certain time until placed under favourable circumstances for germination, whereas those found in a watery medium are in a more advanced stage of development. The *Bacilli Anthracis* belong to the latter class, a moist medium suiting them best as a habitation. How long the *Bacilli Anthracis* can exist in the atmosphere and how long they remain virulent whilst there, I have not heard stated. Millions of germs of different sorts are diffused through the atmosphere in a state ready for inception, and yet man and animals are not constantly suffering from the diseases they produce, but only at intervals of time.

Formerly it was a much disputed question whether different organisms found in the blood or tissues of animals affected with certain specific diseases were the cause or effect of the disease; but now it is admitted by all scientists that certain organisms are the cause of certain diseases of a specific nature marked by their presence.

The *Bacilli Anthracis*, placed under favourable circumstances for their germination, undergo certain changes of life; the rods become actively motile, then some of them cease moving and become lengthened out into thin filaments, which, in turn, divide slowly into segments, the latter developing spores; and so the metamorphosis goes on, the spores becoming rods. It is a curious fact that, during the life of the host, the production of spores does not take place (simple multiplication by fission of rods only), but that on death of the host or emanation of adult bacilli from that body, spore formation is at once established. The rate of development, regulated by the amount of heat under natural conditions external to an animal's body, is from five to seven days.

To be concise the *Bacilli Anthracis* require for their development from pre-existing bacilli in a soil suitable for their germination—

1st. Moisture.

2nd. Carbonaceous and nitrogenous matter, *e.g.*, decaying vegetable and organic matter such as a manure heap, a stagnant pool or marsh, combined with a certain amount of heat—conditions which can be replaced by certain saline solutions in artificial cultivations.

3rd. A supply of oxygen.

4th. A temperature between 10° and 63° Fahr. for reproduction (Howarth); and from 10° to 112° Fahr. for persistence of vitality (Cohn).

But bear in mind that the spores are extremely tenacious of life and vitality, and are capable of withstanding a temperature of 91° Fahr. below freezing point, intense heat for a certain length of time, and many chemical substances which one would think powerful enough to destroy them at once.

Professor Tyndall believes there is a period of latency between the germ condition and the adult state during which the adult bacterium may be destroyed by a low temperature or ordinary heat.

The spores are the active means of contagion.

How the bacilli kill an animal is still an unsettled point: some say they rob the blood of its oxygen, and thus paralyse the lungs by producing carbonic acid poisoning; others that by blocking up the pulmonary capillaries they produce death by coma and asphyxia; and a later theory is that the bacterian excretions prove poisonous.

That Horse Sickness is a soil-developed disease I am certain, and the same opinion was acted upon by Mr. Lambert (whilst acting as Principal Veterinary Surgeon to the forces in Natal, during the Transvaal War of 1881), by Mr. Duck, A.V.D., and Mr. Wiltshire, V.S., Natal.

Natal is said to have lost over 3,000 horses during the hot season of 1885-86, and somewhat less during that of 1879-80. In some years the disease is rife and very virulent all over the colony, in other years but few

cases occur; sometimes it is most prevalent along the coast or in certain districts large in extent, whilst at other times it is much more prevalent and more virulent inland and on the high "veldt" than at the coast. It may well be asked "why should the prevalence of this disease vary so in number of cases and in virulence year after year in different tracts of the country"? May it not be that surrounding circumstances at times alternate and vary, by which the degree of virulence of the poison is regulated?

Horse Sickness is most prevalent during the warm, wet season, *i.e.*, from December to March, abating as the dry season sets in—a season in the uplands or high "veldt" accompanied by intense cold, frost, and sometimes snow. The steady rains of spring (November, December, and January) appear to be the agents that rouse the Horse Sickness germs to activity. Though it abates considerably during the dry season it is by no means entirely checked—several cases occurring yearly during the colder weather, and more especially on the coast. It is usually more prevalent along the coast than on the high "veldt" inland of Natal and the Transvaal; but the same cannot be said of the other side of the South African colony, for, in most seasons, it rages in Bechuanaland—a country about 700 miles inland from Cape Town, and some thousands of feet above sea level, but which is flat, has no well-marked water shed, and is full of swamps during the wet season.

It may be asked "why do so many horses and mules in South Africa suffer and die from Horse Sickness"? Admitted that the disease is Anthrax, it may be readily understood why it is such a dreaded disease and so fatal, if you bear in mind that nearly all horses and mules graze most of the year (excepting a very small percentage stabled in towns and fed on dry grain), many of them night and day, and all the year round, and that Horse Sickness is a soil-developed disease. Anthrax is much more common in those countries marked by a predominance of malarial soil than in hilly countries; is more prevalent in wild districts than in those subjected to drainage and cultivation; and the same can be said of Horse Sickness in different parts of South Africa. Around Cape Town "Horse Sickness" is very rare now, no doubt owing to drainage and cultivation. The same fact is most forcibly impressed upon us in relation to Anthrax in England, some parts of France and Germany, in which countries some districts where Anthrax was formerly a constant and dreaded guest have been freed from it by thorough drainage of swamps and marshes.

As is well known, horses, and more particularly mules, always try to get at the green grass of low-lying ground when out grazing, especially in the dry season, and so run a greater risk of being contaminated than when they are kept on high, healthier ground. Most colonists, the Dutch in particular, hold that the disease is due to miasma, and they consider their horses safe if they be kept from grazing till the sun is well up and the dew off the grass—a practice I have not found of much use, if any, nor have they. I am positive that horses and mules suffer more often from this trouble, as a result of injudicious grazing, than they do from the presence of the germs of the disease in the mist or vapour arising from the ground. Mules when allowed to graze have always suffered more than horses, owing to a great extent, in my opinion, to their wandering propensities and to their persistency in grazing on the green grass of any moist place (swamp or otherwise) or little valley—it being difficult to keep pig-headed mules in a herd on high ground if there be any greener grass near, for which they have naturally a preference. I don't say that all the "vleys," valleys, swamps, and low-lying ground in South Africa are contaminated and sources of the germs of Horse Sickness, but many are, without doubt. Certainly soil on which water lies stagnant for months, such as swampy flats adjoining sluggish streams and near the main

roads, are to be looked upon with suspicion. Water in itself, if flowing at a fair rate, and in a good stream, has been found safe. There are many means by which low-lying places may, and do, become infected. On the open "veldt," animals which have died are not, as a rule, buried by the owners, be they farmers or travellers—only in towns do they bury or destroy carcasses—but are left to rot where they fell; so that centres of contagion are common all over the country, even by the roads, where horses have lain that died from Horse Sickness. The grass and soil round about the carcase become impregnated with millions of bacterial germs, (if that soil be favourable for their multiplication and development), which in turn are washed down to low-lying places by the rains; so that it may be readily understood how certain tracts of country, swampy valleys at the coast especially, come to have such a dreaded name for Horse Sickness. Of course certain spots on dry, high ground are not safe, if animals which have died from Horse Sickness have not been buried deep in that ground and with proper prophylactic measures, or perhaps not buried at all. Places where animals stood whilst suffering from this disease, on high ground or low, become infected, and may remain so for years—the excreta, froth, etc., being charged with *Bacilli Anthracis*—if the soil on which deposited be favourable for their germination. Certain spots of ground near Fort Napier, Maritzburg, are examples of the above.

Time will not allow me to relate many cases to show that this disease is soil-developed, and much more often, if not invariably, contracted from grass containing the poison than from miasma. If the germs producing Horse Sickness be present chiefly in the mist or dew, as many people maintain, why is it that nearly all horses inhaling that mist during the night or day do not fall victims, whether they be under cover or not? Supposing that 400 or 500 horses are picketed on lines in a valley, known or suspected to be a fertile source of Horse Sickness, and that the vapour rises from marshy ground close by, all the horses breathe it, and yet it is found ten days afterwards that only a few, if any, are attacked with the sickness. On close enquiry it is found that many of those affected with the disease broke loose from the lines ten days or so previous to their falling sick, others were allowed to graze at some forbidden place, or watered at a stagnant pool near which were bodies of animals which had died from this disease.

In many districts owners stable their horses at night and turn them out to graze anywhere during the day—on boggy or marshy soil, and even on ground where numbers of dead horses are lying, many of which died from Horse Sickness. The owners had no idea of preventing their animals from grazing on the marshy soil (or on the infected ground where naturally they go for grass in the dry weather, and on which the germs of disease are just as plentiful during the day as at night. They reason "that the grass is nice and green, and as there is no moisture *'apparently'* rising from the marshes, the horses must be safe." This is notably the case at Vryburg and other places in Bechuanaland, where the people ascribe the disease to miasma. At the places mentioned the troops in 1885 lost very few, compared with the losses annually, and at that time suffered by the inhabitants.

(To be continued.)

LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

THE usual quarterly meeting of this association was held in the Medical Institute, Hope Street, on May 13th, the President (R. C. Edwards, Esq.) in the chair.

There were present:—Professor Robertson, Messrs. Briggs, Dobie, Davies, Faulkner, Ferguson, Greaves, Hughes (Oswestry), A. Leather, Locke,

Mitchell, Taylor, J. Welsby, W. T. Welsby, R. Welsby, Whittle, W. Woods, jun., Wolstenholme, and the Secretary. Letters of apology were read from Professors Williams, Walley, and McCall, Messrs. J. S. Hurndall, Smart, and Storror.

Mr. R. S. Mitchell, M.R.C.V.S., Old Swan, was nominated for membership. After the usual preliminary business, the report of the Election Committee was read and adopted.

After some discussion anent the Edinburgh riots, the following resolution was proposed and carried:—"That this Association supports the council of the R.C.V.S. in its determination of appointing an independent conjoint committee—that is to say, the council to appoint a certain number of gentlemen who are neither teachers, examiners, nor members of council, to act with a certain number of gentlemen appointed by the Corporation of Edinburgh, in making a thorough investigation as to the cause of the late riots in Edinburgh."

The PRESIDENT then called upon Professor Robertson to address the meeting. The Professor spoke as follows:—

REMARKS UPON SOME OF THE MORE COMMON DISEASES OF THE FACIAL REGION AND OF THE MOUTH OF THE HORSE NECESSITATING SURGICAL INTERFERENCE.

From having frequently observed that the subjects brought forward for discussion at our association meetings have failed to elicit a full and free expression of opinion, I have to-day selected for the subject-matter of consideration one which, from the extent of material embraced, as well as the frequency with which all must have encountered several of the disturbances in this group of disease, cannot fail, I believe, to yield all of us benefit through the interchange of experience and opinion.

In the observations which I will make in introducing for your consideration certain surgical diseases affecting the face and mouth, I do not propose taking cognisance of all which we may have met with, or which may reasonably be expected to be encountered over a lifetime of practice, but only such as are more commonly observed, and consequently more important.

The entire number of these affections is so far peculiar that the structures chiefly invaded are the sclerous—the bones and teeth—in connection with which destruction and reparation are carried on somewhat differently from their course in softer parts. Both from frequency of occurrence and importance of attendant sequels, I would direct your attention to the subject of *operative interference in connection with the facial sinuses and nasal cavities.*

The cavities formed by or in the bones of the face and cranium which give form and bulk to the head, without proportionately increasing its weight, are liable to suffer from disease, both of a general character and from such as may more truly be regarded as local disturbance.

These cavities, although more or less completely separate and distinct through the intervention of bony or membranous septi, possess at the same time the common characters, (*a*) of being lined with a modification of the common nasal membrane; (*b*) of possessing one common communication with the outer world through the middle meatus of the nose. In health these cavities, in addition to air, small quantities of mucus, the product of the lining membrane. In disease unnatural collections of matter frequently call for surgical interference in order to secure its removal.

This state is encountered (*a*) in cases of chronic catarrh, (*b*) where irritation from teeth fangs or opposing and overgrown teeth induce inflammation and pus formation in the sinuses, (*c*) from local disease of bone tissue and mucous membrane, common and specific.

Symptoms.—The early indications of the existence of unnatural material in these cavities varies somewhat, depending upon the original cause.

When accompanying chronic catarrh the most obtrusive and constantly present, is the intermittent discharge of muco-purulent material from one or both nostrils. When proceeding from direct irritation in connection with disease, irregularity of teeth, or from local bone-disease, there may be difficulty in mastication shown by quidding of the food, holding of the head to one side, and increased salivation. In a few instances swelling with pain on percussion or manipulation over the region diseased may be distinctive, while in all of any time standing there will be swelling and infiltration of the glands and tissues in the submaxillary region. With the majority the nasal discharge, although constant, is augmented when the animal is exercised or when the head is held in an elevated position and immediately depressed.

Where the quantity of the contained material is considerable, or where the consistence is that of semi-solid, which is not uncommon, more positive evidence may be obtained by percussion or through exploration of the suspected sinuses by boring a small hole through the outer bone shell.

It is not, however, the mere fact that the sinuses contain matter which alone warrants us in resorting to trephining; a steady discharge may exist without any accumulation, while this may be arrested by the direct application of agents to the membrane, which cannot be done so effectually as exposing them from without. When satisfied that foreign matter is contained in these cavities, or that the nasal discharge is dependent upon an atomic or other disordered state of the membrane, which other measures have failed to rectify, the operation of these may be carried out with reasonable hope of success. This trephining, it must be remembered, is, in many instances, merely treating certain symptoms, the conditions upon which these repose must ever be present to our minds, if we would obtain permanent restoration of health, *e.g.*, constitutional weakness following certain fevers, or local irritation from teeth-disease. The sinuses which most frequently require our interference in this manner are the frontal and the maxillary, both being frequently involved at the same time. The former of these is most successfully opened, both for simple accumulations of matter and for disease of the lining membrane, at its greatest depth, which, for all ordinary purposes, is determined by means well enough known to all. With the latter we have to remember that the sinus is divided by a more or less perfect septum into a superior and inferior portion. To open the superior portion, we select a spot two inches from the terminal portion of the zygomatic ridge and one inch above the ridge itself.

By trephining one inch from the termination of the ridge and the same distance from its spine, we are generally able to obtain entrance to both superior and inferior sections, being directly over the partition between these; this is frequently what is aimed at, seeing the material to be discharged may be contained in both cavities. The operation of either or in both of these situations may be carried out standing, but is generally more conveniently done when the animal is cast. Before employing the trephine to remove the portion of bone it is needful either to make a crucial or a V-shaped incision through the skin, so that it may be reflected and the underlying connective tissue removed, or the same object may be obtained by removing entirely a circular portion of the skin large enough to allow the trephine to work clearly. The latter method I prefer as offering less chance of trouble in future dressing which the granulating edges of the skin-flaps are likely to entail. In no cases where this has been carried out have I been troubled with want of covering and healing over the original bone wound. When the skin has been reflected or removed it will be found advisable to drill a hole with an appropriate gimlet through the outer shell of bone,

thereby securing a stationary point in which the centre pin of the trephine may work, so facilitating the cutting of the instrument. The trephine which I have found most efficient is one suggested by Mr. Mannington, Brighton, having a movable centre pin slightly curved and roughened on its concave surface, which assists in preventing the detached portion of bone from falling into the cavity of the sinus.

In the case of the maxillary sinus when cut over the partition between the superior and inferior divisions, it may be found needful, even when the shell of bone is perfectly cut through, to use the elevator to raise the edge of the detached portion, so as to separate it from the connected septum. Having opened the sinus or sinuses it is generally needful to wash them out thoroughly by means of a syringe and tepid water, to which has been added some disinfectant; this washing is better carried out after the animal has risen from the operating bed, the chances of choking being in this way greatly reduced. This process must be continued daily or on alternate days until we are satisfied that the foreign matter has been entirely dislodged or the orifice closed. The complete discharge of the accumulated material, when of a firm consistence and of long standing, is always difficult, and in some impossible, because of its collection in the crevices of the bones; to avoid, if possible, this undesirable condition, trephining, at different points by which the contained mass may be broken down, is to be recommended. This with steady fumigation and syringing would succeed where a single opening would fail. One of the more recent cases of this sort which has come under my observation was trephined in five different places over the one side of the face, the discharge ultimately subsiding; nor were there perceptible blemishes, although in every case the trephining was done by the removal of the skin and by the use of the $\frac{3}{4}$-inch trephine.

When the continued nasal gleet is dependent upon an atomic and unhealthy state of the membrane lining the sinuses rather than on collections of matter there, general treatment ought to accompany the local, for the proper application of which the operative interference has been carried out.

In all instances where, in addition to the presence of matter in the sinuses or apart from it, disease of the bone tissue exists, the operation of trephining is not likely to be of much benefit.

Here the exudation from the inflammatory action, common or specific, by gradually incorporating itself with the minute structure of the bone, produces swelling, extending and gradually changing the physical character of the parts, frequently to such an extent that the entire bone structure, from infiltration with a gelatinous or oily material, or calcareous matter, becomes unnaturally softened or hardened. When gelatinous and fatty changes occur in the bone tissue there is generally a corresponding alteration in the lining membrane, and filling of the cavity with a varying coloured putty-like material, which, through bulk, pressure, and association, induces obstruction of the nasal chamber, with alteration in the nasal septum and turbinated bones. Under these conditions, trephining the nasal and turbinated bones may afford relief; rarely, however, do we meet with perfect recovery, particularly if the bone element is itself diseased.

When matter is contained in the convolutions of the turbinated bones, the ultimate result is generally more favourable. In such cases I have found that the preferable method is that of trephining the nasal bones at the superior part of the latter, by which facility is afforded for thoroughly washing the convolutions and nasal cavities, which otherwise is not well done. The most of these cases, if not relieved, are early incapacitated for work, although a fatal termination may be long delayed. This operation, when

fairly successful, whether carried out with a view to remove unnatural collections of matter in the sinuses or to promote a healthy condition of the lining membrane, I have not found to be very liable to require repetition by return of the conditions which first demanded it. As already noted, where the bone elements themselves are involved, neither amelioration of symptoms nor ultimate restoration to health are probabilities like to occur, consequently cases exhibiting this are better dealt with apart from operative interference.

Nasal Polypi.—These unnatural growths of a muco-fibroid character, situated in different parts of the nasal chambers, and directly connected with the membrane of the walls, or with the turbinated bones, although not very common, are still often enough encountered to attract notice, while from their position, as well as bulk, they are sources of annoyance. Their existence is determined (*a*) by the snuffling or vibratory character of the breathing, (*b*) by detection with the eye when the horse's head is held in a favourable light. In some instances their presence may cause a watery or muco-purulent discharge. Their removal is not usually a serious or difficult matter, provided it is possible to seize them with torsion forceps, or to pass the chain of an ecraseur over their bodies and gradually twist or divide the pedicle. Having accomplished this, a little fumigation or spraying of the cavity with an astringent antiseptic will be sufficient to restore the parts to a natural condition. In exceptional cases it may not be possible to reach these growths without trephining the bony walls of the cavity, and the exercise of considerable manual dexterity in seizing and retaining hold of the unnatural growth.

Dentiferous Cysts and Tumours.—Cavities lined with a more or less perfect membrane, and containing teeth or masses of dentiferous material are occasionally encountered, particularly in connection with the maxillary and temporal bones. Both of these conditions may exist for lengthened periods, and apart from their obvious swelling and disturbance of regularity of form, they do not interfere with the animal's usefulness.

They usually attract notice and demand treatment by having their boundary membranes broken, and through the establishment of a communication with the outer world, induce an irregular discharge of purulent or sanious matter.

The only chance of arresting this disagreeable discharge, and restoring the parts to a healthy state, is the removal of the dentiferous growth, or in the case of the cysts, of the abortive teeth.

Sebaceous Cysts.—These are chiefly found in connection with the lining membrane of the false nostril; they frequently attain a large size, are filled with mingled sebaceous and mucous matter, it may be epithelial cells and hair, and are objectionable from their unsightly appearance more than from impeding respiration.

Their treatment, which consists in laying the cavity open from the inner surface of the pouch, and washing it with some mild astringent, is generally successful in securing their removal.

Affections of the glands and ducts of the mouth connected with insalivation.—(1) Open parotid duct and parotid fistula. The condition of an open fistulous sore, although possible to be met with in connection with the ducts of any of the salivary glands, is chiefly confined to Steno's duct from the parotid previous to its entering the mouth between the second and third upper molars.

Whether occurring there or elsewhere such lesions are always troublesome and sometimes serious, while the treatment in every instance must be directed along lines essentially similar.

A simple open salivary duct is generally the result of an injury; in a few cases it may follow as a sequel of the formation of the abscess in an attack of Strangles.

In either instance a simple opening into the duct may, by failure of the healing process become converted into a fistula. The indications of either of these states are the existence of a discharge from an abrasion, its character, and the mode of its emission. The real nature and significance the moisture attached to some particular spot may not at once be suspected; a careful examination, however, will at once satisfy that the material discharged is different in character from serous or inflammatory exudate, and that, during the movement of the jaw and mastication, the quantity is distinctly increased. The opening from which the fluid is discharged may not feel tender on manipulation; it is usually slightly red and papulated, and if examined by probing it will be found that a sinus leads in the natural direction of the duct. As it is seldom that a natural healing and closing of the wound occurs without our interference, it is extremely important that attempts in this direction be made as early as possible; measures applicable in the early stage may be found inoperative when the simple puncture has become a fistula. Our object is to secure closure of the wound with obliteration of the duct. When taken in the early stages, it is sometimes possible to secure closure of the opening by means of a metallic suture or fine needle passed through the lips of the wound around which a figure-of-eight ligature is placed, covering these repeatedly with collodion or solution of shell-lac, and the enforcement of as much local and general rest as possible, the animal for some days being supported on nourishing gruels, and muzzling him to prevent his eating the litter.

When this simple method is a failure, or when our attention is not demanded until some time has elapsed from the appearance of the wound, a somewhat different method will require to be attempted to secure closure. In such cases an attempt must be made to secure an opening through the buccal membrane into the mouth, in the course of the natural canal if possible; this opening, whether through the duct or not, must be maintained patent for several days by means of a metallic or other seton, before a final effort is made to secure closure of the external opening. This latter object we endeavour to obtain in the manner already noticed. If carefully carried out, the success, if not complete, is generally partial, a smaller opening than existed at the beginning of the treatment now remaining. In such cases a cure is sometimes accomplished by the application of a little canthar. ointment over and around the orifice. When every means employed to obtain a good and perfect closure of the wound has failed, we may be warranted in attempting to extirpate the gland or to destroy its integrity. The former is a tedious process not unattended with danger; the latter is attempted by injecting into the gland structure through the duct some caustic or irritating fluid, by which the secreting function is destroyed; for this purpose I have found a solution of forty grs. of cor. sublimate, or half drachm of dilute nitric acid, with half a drachm of nitrate of silver, to the fluid ounce of water, serve the purpose well.

This injection requires to be repeated, and its use is attended with considerable disturbance to the animal.

(To be continued.)

SOUTHERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

A MEETING of the Southern Counties Veterinary Medical Association was held at Lewes on March 31st, when several matters of business were transacted, and an interesting paper read by Professor Duguid, of the Veterinary Department of the Privy Council. The chair was taken by Mr. J. D. Barford, President of the Association, and there were also present: Messrs. E. A. Hollingham, Tunbridge Wells, Hon. Secretary; A. C. Piessè, Redhill, Treas-

urer; F. W. Wragg, London; Rowe, London; W. A. Edgar, Dartford; R. J. Barton, Eastbourne; H. Raymond, A.V.D.; F. Farrance, Eastbourne; J. B. Martin, Rochester; and R. A. Stock, Lewes. The minutes of the last meeting having been read by the Secretary, and signed by the President, the Secretary read several letters apologising for inability to attend, including one from Mr. Henry Hogbin, who stated that he would rather not be re-nominated for the office of Treasurer. The Secretary also stated that, in accordance with instructions, he had communicated to Mr. George Fleming the fact of his having been created a honorary member, and had received a reply expressing his appreciation of the honour conferred upon him.

Election of Officers.

The first business was the election of officers for the ensuing year.

Mr. MARTIN proposed the re-election of Mr. Barford as President, and Mr. WRAGG seconded.

The CHAIRMAN said he appreciated very much the compliment they paid him, in again asking him to take the chair, but on principle he did not think it was quite the right thing to do. He felt that it would not be paying a very great compliment to the other members, and out of fifty-one members he felt sure they could select some one who would be pleased to accept the office. He would much prefer that they should nominate some other member as his successor, if they would kindly do so.

No other nomination was made, and

Mr. RAYMOND said, if the meeting was unanimous in asking Mr. Barford to take the chair for another year, perhaps he would kindly continue the office. The way in which he managed the affairs of the society last year, and the exceedingly good quality of the papers that were read at the meetings, should certainly have some effect in inducing them to beg him to again take the chair. (Hear, hear.) If he only looked back to the meeting held at Southampton, when Dr. Fleming spoke, he remembered seeing some of the most eminent members of the medical profession present, and he could not help thinking that Mr. Barford was doing more to bring the profession before the notice of the general public than perhaps any other President had done. He thought it was very important that the veterinary profession should be brought before the public as much as possible, and he did not think any one could see that this was done better than Mr. Barford. (Hear, hear.) If they could prevail upon him to reconsider his proposal to withdraw, he was sure they would be doing themselves good as a society, and benefitting the profession generally. (Applause.)

Mr. FARRANCE seconded the last speaker's remarks.

The CHAIRMAN reiterated what he had already said as to his reasons for desiring to withdraw, but said if it was the unanimous wish of the meeting that he should continue in the office he would not stand in the way. There was a gentleman, however, who had just entered the room (Mr. Edgar), who would, by reason of his ability and standing, make a very excellent successor to himself.

Mr. MARTIN gathered that Mr. Barford would be quite willing to take the chair for another year. They all felt that he had performed his duties so efficiently and well, that he was such a representative man, and had taken such a vast amount of interest in raising the profession to the highest status, so far as he possibly could in his position as President, that he was quite entitled to preside over them for another year. (Hear, hear.) He would, therefore, put it to the meeting that Mr. Barford be re-elected.

Mr. EDGAR, having been referred to by the Chairman, intimated that he should certainly be pleased to support the proposition before the meeting.

The motion was carried unanimously.

The CHAIRMAN, in replying, said he felt highly flattered by their recognition of his services, and he could assure them that, if he had performed his duties to their satisfaction, any little trouble he had taken had been amply repaid. It had been truly said that he had somewhat the interests of the profession at heart, and if he took any little position of onus and responsibility he trusted that he should always be found carrying out the duty that devolved upon him creditably, at any rate, if he did no more. He would do his best, if it was their wish, for another year. (Applause.)

The SECRETARY, in reply to the Chairman, said the Vice-Presidents were Messrs. Wragg, Legg, Martin, and Edgar, and, according to the rules, four were as many as was considered necessary.

There were no other nominations, and

The CHAIRMAN proposed the re-election of the Vice-Presidents, which was carried unanimously.

The next business was the appointment of Secretary.

The CHAIRMAN ventured to say that he did not think they required to elect another Hon. Secretary. ("Certainly not," and "Hear, hear.") If his friend on his right (Mr. Hollingham) would allow him to say so, he thought the appointment was in excellent hands already. The business of the Association had always gone on smoothly with Mr. Hollingham as Secretary, and he trusted that he would allow himself to be nominated for another year. He felt sure that all the members would be perfectly satisfied if he would only agree to accept office for another year.

Mr. FARRANCE seconded.

Mr. HOLLINGHAM assured them that he should be very happy if he could see his way to accept office another year. He thoroughly appreciated their kindness, and the confidence they showed in his ability by proposing him for re-election; but he took it that the great thing was to know that the business was carried on properly, and there was a gentleman in the room at that moment who, he thought, would be able to perform the duties of Secretary quite as efficiently as he could himself. Any assistance which he could give him he should be very happy to render. It was not from idleness that he was proposing to relinquish the office, but it was because he found that his business made so many calls upon him that the little time which was required to be spent on these duties sometimes rendered them rather irksome. As an amendment to the proposition, he would move that Mr. Piessè, of Redhill, the gentleman who succeeded him in his practice at Redhill, and who, he thought, would be ready to accept the office, should be appointed Hon. Secretary. As he had already said, he would give Mr. Piessè every assistance in carrying out the duties if he required any, but they were in reality so simple that he could not imagine it would be necessary.

The meeting did not appear disposed to acquiesce in the withdrawal, and

Mr. MARTIN proposed that the resignation be not accepted. Mr. Hollingham was such a jolly fellow to meet, was so fluent and eloquent, and made such nice speeches at their meetings—(hear, hear, and laughter)—and performed his duties in such an admirable manner, that he hoped the resignation would not be accepted. He was a tried man. They knew him, and were so well satisfied with him that he really thought it would be a matter of impossibility to do without him. Why, the society could not go on without him, and he must go on again another year. (Laughter.)

Mr. WRAGG seconded the proposition.

The CHAIRMAN said he was always loth to change officers, but at the same time he did not like to thrust the duties upon any gentleman, especially as this was an honorary post.

The SECRETARY again said he would really prefer to resign, for the reasons he had given, but

The CHAIRMAN put the matter to the vote, and a unanimous wish was expressed for asking Mr. Hollingham to continue in office another twelve months.

Mr. HOLLINGHAM then accepted the office, remarking that he should get Mr. Piessè in training for another year. (Laughter.)

The meeting then proceeded to the election of Treasurer. A suggestion was made for combining the offices of Secretary and Treasurer, and the SECRETARY said that he took the subscriptions and gave receipts, and paid whatever accounts there were. As he was re-elected, he proposed to furnish them with a balance-sheet at the next meeting. The balance on the last account was £22 12s. 1d. in their favour. Since then he had received thirteen guineas, making a total of £36 5s. The subsequent expenses, not including the expenses of this meeting, had been £12 15s., and there was £14 13s. 6d. due from members. Roughly speaking, there was a balance of £28 in favour of the society. (Hear, hear.) In the £14 he was including only subscriptions for past years.

The Secretary was requested to forward a reminder to those members from whom subscriptions were due.

Mr. EDGAR asked if they were going to amalgamate the offices of treasurer and Secretary.

The CHAIRMAN thought if the rules provided for their being distinct offices, it might be hardly worth while to make an alteration.

The Secretary referred to the rules, and it was considered that the offices had better be distinct.

The CHAIRMAN would be very pleased to ask Mr. Edgar to kindly take the office of Treasurer.

Mr. EDGAR was sorry that he must decline.

The SECRETARY said, so far as the practical carrying out of the duties went, it might remain as it was, but he thought they should keep up the theory of a separate appointment.

Mr. FARRANCE seconded Mr. Edgar's nomination, but

Mr. EDGAR nominated Mr. Piessè in his stead.

The CHAIRMAN, as the proposer of Mr. Edgar, accepted the suggestion, and Mr. Piessè was thereupon seconded by Mr. HOLLINGHAM, and unanimously elected.

The Purchase of Instruments.

At the last meeting a suggestion was made by Mr. WRAGG with regard to the purchase of some of the more expensive instruments used in the profession, for the use of members of the Association.

Mr. MARTIN pointed out that this district was not like London, where the idea could be more easily carried out, and

The CHAIRMAN also said he thought it would be found rather inconvenient to get at the instruments when they were required. They must lie at some central place.

Mr. WRAGG said that as it seemed to be the wish of the meeting, he should be pleased to withdraw his suggestion.

Mr. HOLLINGHAM pointed out that their members extended all the way from Dover to the Isle of Wight, and northwards to London.

Mr. ROWE, speaking from his own experience in reference to the way in which the idea was elsewhere carried out, said he was afraid it was more honoured in the breach than in the observance. A sum of £50 was voted during his secretaryship for instruments, and up to the time of his resigning the arrangement was conscientiously adhered to. He gave them over to his successor, but at present scarcely a single member, he believed, knew where to find half of them. The instruments to which he referred were of an essential

character, but were so seldom required as to make their purchase an inordinate expense to the general practitioner.

The CHAIRMAN said the evil to which Mr. Rowe alluded would be still more likely to occur in a scattered district.

The matter then dropped.

The Elections of Councilmen.

The CHAIRMAN called the attention of the meeting to the proceedings in connection with this matter last year, when the Lincolnshire, the Eastern Counties, the West of England, the Central, the Southern Counties, and the Royal Counties Associations all amalgamated to support the same candidates. He thought it would be within their recollection that Mr. Henry Simpson, of Windsor, and himself, were the nominees of those associations, and he was happy to say that the nominations were successful. This year, carrying out the same principle, so far as the other associations had met, they were obliged to support their friend, Mr. Wragg, and Mr. John Roalfe Cox; and, sitting as he had done at the Council Board, he thought more useful members could not be found. He trusted they would all give them their support, and he asked gentlemen present to remind their neighbours who, not being present, might not be aware of the compact which they were morally bound to carry out. He moved a resolution pledging the Association to use its utmost endeavours to carry the candidates named.

Mr. EDGAR pointed out that they were already embodied in the list sent out of associations who were pledged according to the terms of the resolution. He thought they were undoubtedly pledged to vote for the same candidates, according to the meeting in London; but, he asked, who selected the candidates? If they were already pledged to support them, he thought the present proceedings were superfluous.

The CHAIRMAN took it that, all the associations having banded themselves together last year, it was hoped they would do so again.

Mr. EDGAR: Have we had the opportunity of discussing what two members we should support?

Mr. HOLLINGHAM: They supported ours last year.

Mr. MARTIN: We nominated our own last year, and we promised to give them their turn this year, and to support whoever they nominated. The other societies agree to support Messrs. Wragg and Cox, and we fall in with them, according to our promise.

The CHAIRMAN pointed out that the resolution had not been seconded. They could afterwards make any remarks upon it, or dissent from it if they desired.

Mr. EDGAR really did not see any ground for the resolution, under the circumstances, as it appeared to him that the matter had been already decided upon.

Mr. MARTIN: The understanding last year was that we should support them.

The CHAIRMAN: We entered into a sort of moral compact with the other associations.

Mr. EDGAR: I think it would have been more consistent and courteous to the Southern Counties Association had they waited before sending out this list and including our name.

Mr. WRAGG said the circulars appeared to have come out a little too soon. No doubt it was quite an oversight on the part of Mr. James Simpson, who, if he had been present, would have been better able to defend himself than he was to defend him. Mr. Cox was the nominee of the West of England Association. The Central nominated himself.

The CHAIRMAN said the mention of the name of Mr. James Simpson reminded him, that he had a letter from him, apologising for his non-atten-

dance, in consequence of a very important engagement. It happened to be the day on which the officers of the Household Brigade gave their annual dinner, and, being in the same town, he was almost obliged to attend. The circular was enclosed. He (the speaker) agreed that it might have been better if the Association had been left out.

Mr. MARTIN said, if the others had agreed, they had nothing to do but to support them, according to their compact.

Mr. EDGAR said he was not saying anything against the principle of amalgamation, with which he thoroughly agreed.

The CHAIRMAN then put the resolution, "that the Southern Counties support the election of Messrs. Wragg and Cox," which was agreed to.

The Royal College.

The CHAIRMAN read a letter with reference to a proposition that the Norfolk and Eastern Counties' Society should join with the Southern Counties, the West of England, and the Lincolnshire societies, to raise a sum not exceeding £60, to present the Royal College of Veterinary Surgeons with the remaining stained-glass window. For this purpose, the Norfolk and Eastern Counties' Society had voted £15, and this Association were asked whether they would be willing to give a similar sum. The Chairman explained that he had been requested to read the letter, and he left the subject in the hands of the meeting, with only one remark. He had a very strong wish to see their building embellished in every possible way, and he thought they had been more than successful, already, in getting four stained-glass windows given them. Personally, he should have no objection to join in this movement, but there was one thing he strongly felt, viz., that they ought first of all to pay their just debts. The question of the building fund was a serious one, and he could not help thinking that if every association in the kingdom would be ready, in this Jubilee Year (laughter), to make a great effort to contribute towards that fund, it would be an exceedingly useful and proper step to take. At the same time, if it was the wish of the Association to join with the Eastern Counties—he did not know what the others had done—and contribute to this window, he certainly should not stand in the way.

Mr. MARTIN quite agreed that before going in for any luxuries in regard to the building they ought to pay for the structure. That was the downfall of a good many private individuals—to indulge in luxuries before they could have common necessaries.

The CHAIRMAN knew there was a special wish that in this Jubilee year they should make an extra effort to very much reduce the deficiency on the building fund.

Mr. WRAGG asked if the fact of a contribution being made out of the funds of the society would prevent private individuals from contributing to the building fund.

The CHAIRMAN: Not in the slightest.

Mr. MARTIN suggested that Mr. Edgar should make a proposition which would, perhaps, induce others to unite with them.

Mr. EDGAR said, if the proposal before the meeting were put in the form of a resolution, he would propose, as an amendment, that they subscribe so much for the building fund.

Mr. WRAGG then moved, for the purpose of facilitating the business, that they should join with the other societies in subscribing for the window.

Mr. BARTON seconded.

Mr. EDGAR moved that, instead of giving £15 to the window, they should contribute that amount towards the liquidation of the debt on the building, and invite other associations to join them, so that the debt might be greatly reduced during the year of Jubilee.

Mr. MARTIN would have much pleasure in seconding, with the condition that all the other societies subscribed a like sum. (Hear, hear.) He would make this a stipulation.

Mr. EDGAR then moved that they should give £15, provided that the other associations gave the same amount.

Mr. WRAGG: I think you will be told by some associations that they have already subscribed.

The CHAIRMAN thought the fact of others having subscribed was rather a precedent for them.

Mr. HOLLINGHAM proposed that they should communicate with certain other societies, to be determined upon, and inform them that their gift of £15 would be dependent upon an equal amount being given by them. They could obtain their replies, and if they did not meet them in the matter they could then decide whether they would give their £15 as an independent contribution. This would put other societies on their mettle, and he thought they would be likely to obtain larger subscriptions.

Mr. MARTIN: We feel that it is a disgrace that the college should be in debt, and that we ought to make some effort to remove it.

The amendment, that £15 be given to the building fund, conditionally on ten other societies giving the same amount, was carried, with seven supporters.

Mr. WRAGG explained that he had no desire to oppose the amendment, but he had merely desired that they should get at the feeling of the meeting; and the CHAIRMAN again pointed out that this resolution was entirely outside any individual gifts.

(*To be continued.*)

ROYAL AGRICULTURAL SOCIETY.

AT the monthly Council meeting, held on June 1st, Sir JOHN THOROLD stated that the Committee had had before them the "Observations on Milk Scarlatina," issued by the Agricultural Department of the Privy Council. Mr. Cope had presented the following report:—

"*Pleuro-pneumonia.*—According to the returns published in the *London Gazette* for the first eight weeks of the present quarter, there were ninety-nine outbreaks of Pleuro-pneumonia reported in Great Britain, and 415 cattle attacked.

"Of these outbreaks forty-one were in England, and the remaing fifty-eight in Scotland; and of the cattle affected 124 were in England, and 291 in Scotland.

"The districts in England in which the disease has been most prevalent, during the period above named, are the Metropolis and the West Riding of Yorkshire.

"In Scotland the disease has been most prevalent in the counties of Edinburgh, Forfar, and Lanark; in the last-named county no less than twenty-five fresh outbreaks have occurred in eight weeks, and 117 cattle have been attacked by the disease.

"*Swine Fever.*—The *Gazette* returns for the eight weeks ending May 21st show that 1,610 fresh outbreaks of this disease were reported in Great Britain, and 8,676 swine were attacked by it. Of these 5,733 were slaughtered, 2,215 died, and 148 recovered.

"*Anthrax.*—In Great Britain, during the eight weeks above referred to, there were thirty-seven outbreaks of Anthrax reported, in which 134 animals were attacked. Of the above outbreaks, thirty occurred in the counties of Chester, Cornwall, Derby, Essex, Hants, Kent, Lincoln (parts of Holland), Lincoln (parts of Lindsey), Norfolk, Northampton, Notts, Rutland, Sussex (East), York (West Riding), and the Liberty of the Isle of Ely. The other

seven outbreaks occurred in Pembrokeshire, in Wales, and in the counties of Aberdeen, Banff, Edinburgh, and Forfar, in Scotland.

"*Rabies.*—Reports of outbreaks of this disease have been received during the present quarter from the counties of Chester, Derby, Essex, Huntingdon, Kent, Lancaster, Middlesex, Notts, Stafford, Surrey, York (West Riding), and the Metropolis in England, but no cases of the disease have occurred in either Wales or Scotland. There have been altogether 223 cases reported during the period mentioned, but 110 of these really occurred prior to that time among the deer in Richmond Park, but were not reported at the time because the disease affecting the deer was not at first recognised as Rabies. Of the 223 animals attacked by Rabies, two were horses, two cattle, forty-five dogs, and 174 deer."

Professor Robertson had presented his report on experimental work on protective inoculation for Anthrax and Quarter-ill, of which the following *résumé* gives the practical outcome of the work:—

"The practical outcome of this work appears to us to be that it has made clear the fact of the communicability by inoculation of this disease known in England as Quarter-ill, and its identity with that spoken of by MM. Arloing, Corenen, and Thomas as 'Charbon Symptomatique.'

"That without further proof of its efficacy we cannot recommend the use of Arloing's dried muscle-juice as a means of protecting cattle from the disease in Great Britain.

"That the simplicity of this method of inoculation, as well as its general practicability, favours its adoption; that inasmuch as some of our experimental guinea-pigs, after being 'vaccinated' with muscle-juice subjected to the effect of a lower temperature, resisted the influence of injected virulent matter, some of which killed cattle and other guinea-pigs vaccinated with Arloing's powder, further experiment in this direction should be made. That in such case, and, indeed, in all, the result is likely to be incomparably more valuable and trustworthy if experiment for protection be made with animals of the class for which practical protection is sought.

"That the Hodnet Hall experiments go very far to prove that the intravenous injection of considerable quantities of fresh virus is protective, and to a large extent practicable. The greatest drawback to its general adoption seems to be the necessity for fresh material with which to inoculate. This difficulty is not really as great as at first sight may appear. It at least has this in its favour, that it entails the existence of the disease on the estate, and does not encourage the chance of introducing fresh disease from without, as is the case, probably, with some systems of inoculation.

"Resulting from the publication of a report of the experiments at Hodnet by Major Percy, several stockowners have applied to us to have their animals protected by the intravenous method. In view of the results already obtained we strongly advise the farther and fuller adoption of this plan.

"In concluding our report, we must again acknowledge our indebtedness to Mr. C. de Murietta for placing animals and services at our disposal; to Major Percy, whose untiring interest in the whole matter, and great solicitude for the proper observance of all details in connection with the Hodnet experiments, have had no small share in the attainment of their success; to Messrs. Bennett, Ryott, Kettle, and Barrow, veterinary surgeons, who, together with other gentlemen before referred to, have rendered material assistance. "(Signed) WILLIAM ROBERTSON,
JOHN PENBERTHY."

It was resolved that the whole report should be referred to the *Journal* Committee, with a view to its publication in the *Journal*, and that Professor Robertson should be asked to prepare an abstract of it for immediate publication in the agricultural press.

A report had also been received from one of the Society's provincial veterinary surgeons, in reference to the absence of any serious outbreak of disease amongst the animals of the farm in his district (Bedford).

The report having been presented, the PRESIDENT said that before putting it for adoption he thought that it was desirable to call attention to the statements which had been made in the public newspapers by Dr. Klein on the subject of Milk Scarlatina. A report upon this subject had been presented to the Veterinary Committee by the Agricultural Department of the Privy Council. A very alarming account had been given as to the possibility of Scarlatina being communicated to human beings by the use of milk from diseased cows. It was most desirable in the interest not only of agriculture, but of the public at large, that this question should be fully cleared up; and he (Lord Egerton) thought it was for the Council of this Society to suggest to the Agricultural Department of the Privy Council that they should undertake further investigations into the subject, with a view to making it clear whether it was possible that Scarlatina could, as alleged, be communicated direct from the milk of diseased cows. He would suggest that a letter should be addressed to the Agricultural Department on the subject.

Mr. COPE, in reply to the President, said that the report which was presented to the Committee was, as they were aware, the result of an application from the Royal Agricultural Society to the Privy Council for an inquiry as to the subject. Professor Axe had made the inquiry, and he ascertained that the eruptive disease of the udder and teats affecting cows existed not only upon the implicated farm at Hendon, but at four other places at the same time. The outbreaks of Scarlatina and this disease were identical in point of time, but, as a matter of fact, no outbreak of Scarlatina occurred in connection with the four other places. Professor Axe, in consequence of these facts, had with good reason come to the conclusion that the milk which was stated to have produced Scarlatina, at the end of 1885, must have received its infection from some other source than that of the cow. Dr. Klein, in his statement at the Royal Institution on Friday last, suggested that the cows might themselves have been affected with Scarlatina at the time, and he further suggested that they might also have been infected by the people who were milking them. Dr. Klein had also endeavoured to prove that he could produce Scarlatina in cows from material obtained from Scarlatina patients. It would, however, be most satisfactory to the Council to know that when an opportunity was afforded by an outbreak of this eruptive disease, appearing among the cows of this country, the Agricultural Department had instructions from the Government to make any inquiries that might be necessary, and they hoped, if they could only get the information, to issue a further report on the subject.

Mr. WAKEFIELD said that the article in the *Times* on the subject had fallen like a bomb on the milk-drinking portion of the country. It was a question whether some immediate action should not be taken by this Society. Silence gave consent, and if nothing were done in the matter, it might be that those who were looked up to as being in a position to quiet the mind of the country in such a matter were by their silence consenting to the statements which had been put forward by Dr. Klein. The statements made were alarming, and demanded immediate consideration.

The PRESIDENT suggested that the Society might endeavour to find out whether it was possible for cows to have Scarlatina. If it were possible, then, no doubt, Scarlatina might be conveyed to human beings through the milk. If it were not possible for cows to have Scarlatina, then they might feel (assuming that the Scarlatina had been conveyed through the milk) that it was owing to some other cause than that of the cows; the milk might have been exposed to the infection of contagious disease through the hands of

those who milked them. It was a question which ought to be investigated by the Privy Council, and they should endeavour to ascertain whether it was possible for cows to have Scarlatina at all. The President suggested therefore that the Society should ask the Government to hold an inquiry into this matter, and not leave it to the Local Government Board, but that the officers of the Agricultural Department of the Privy Council should itself take up what was of the greatest importance to agriculturists. If it were the pleasure of the Council that a letter should be addressed to the Privy Council, in which the Society would ask them to conduct any inquiries which they might think necessary to clear the matter up, he would see that it was done.

The motion of the President having met with the unanimous approval of the Council, the whole report was adopted.

Reviews.

A Manual of Veterinary Hygiene. By Fred Smith, M.R.C.V.S., Army Veterinary Department. (London: Baillière, Tindall, and Cox. 1887.)

The great need for a work on veterinary hygiene has long been felt, and it is rather surprising that no one has come forward to supply the want. Considering the immense importance of maintaining horses and other animals in health and efficiency, and the progress that has undoubtedly been made in sanitary science, there was every reason to look for some authoritative guide on the subject for the use of veterinary practitioners and the instruction of students. At last, however, the reproach has been removed from us, and by the production of the work now issued Mr. Fred Smith has given us a manual in every way worthy of the profession, while, so far as the English language is concerned, the book is unique with regard to its subject. In France, Magne's treatise on veterinary hygiene has always held a deservedly high place, and has passed through at least two editions. There is no reason why Mr. Smith's manual should not prove even more successful, as it possesses all the requisites to be found in the French author's work, but in a more complete and succinct form; while, though written in somewhat popular style, it has a more scientific basis.

Everything relating to water, air, ventilation, food, stables, drainage, soils, disinfection, and labour in connection with health, is dealt with in a series of chapters, while other chapters are devoted to individual hygiene, the eradication of epizoötic diseases, elementary meteorology, and statistical inquiry.

There are a few statements which probably some army veterinary surgeons might dissent from, as that on page 303, which ascribes the violent or furious condition of horses on shipboard to congestion of the brain; and on page 298, that slings and padding are unnecessary for shipstalls. With regard to embarkation of horses, it is omitted to be mentioned that now they are more frequently walked on board than slung, thanks to improvements in transports.

But these trifles in no way detract from the excellence of the work, which, well illustrated, printed, and finished, forms a most valuable addition to our literature, and well merits high commendation.

LECTURES ON MEDICAL PATHOLOGY. By H. G. SUTTON, M.B., F.R.C.P. (London: Baillière, Tindall, and Cox. 1886.)

These "Lectures on Medical Pathology" were delivered at the London Hospital during the summer session of 1885. They comprise the leading subjects in pathology, and are eminently instructive and suggestive, especially the earlier lectures on the Nature of Disease, Inflammation, the General Conditions of Inflammation, and Inflammation of Serous Membranes. The others, though they are no doubt worthy the attention of veterinary surgeons, yet possess more importance for the practitioner of human medicine. Throughout the work there is noted a philosophical reasoning and reflections on disease processes which give great force to the views put forward, while the anecdotes of cases, given, as they are, in a conversational style, put author and reader at once upon familiar terms, and render instruction easy and pleasing.

THE LIVER-FLUKE AND THE ROT IN SHEEP. By E. HALSE, A.R.S.M. (London: Stanford. 1887.)

This contribution to the life-history of the liver-fluke, and the morbid condition it produces in animals, was a prize essay written while the author was a student at the Agricultural College at Tamworth, the prize being offered by Miss Ormerod, consulting entomologist to the Royal Agricultural Society, who has done so much for agriculture by her researches in vegetable and animal parasitology. There is nothing absolutely new in the essay, but all the principal facts relating to the subject are arranged in a careful manner, and described in such a way that the non-scientific reader can be made acquainted with the most recent investigations without loss of time or patience. There is a folding plate containing figures of the liver-fluke and its intermediate bearers.

Army Veterinary Department.

Gazette, June 17th.

Veterinary-Surgeon, First Class, C. G. H. Reilly, retired pay, has been granted the honorary rank of Inspecting Veterinary-Surgeon. Veterinary-Surgeon, First Class, Daniel Isaac Hinge, has been placed on retired pay, with the honorary rank of Inspecting Veterinary-Surgeon.

The Annual Dinner of the Department took place at the Whitehall Rooms, Hotel Métropole, London, on June 10th. There were present: Principal Veterinary-Surgeon G. Fleming, LL.D. (in the chair); Inspecting Veterinary-Surgeons Evans, Lambert, Walters, and Marshall; Veterinary-Surgeons (First Class) Thomson, Walker, Duck, Poyser, Oliver, Rostron, Kettle, Berne, Reilly, Woods, Wilson, S. L. Pallin, J. W. Evans, Jones, Whitfield, Philips, Burton, Longhurst, Spooner, M. Anderson, Edwards, F. Smith, D. C. Pallin, W. Pallin; Veterinary-Surgeons Morgan, Hagger, Killick, Savage, Moore, F. Raymond, Rutherford, Lees, Forsdyke, Griffith, Caldecott, Kelly, Bennett, R. W. Raymond, and Dundon. Covers were laid for forty-eight.

At the great Jubilee Service held at Westminster Abbey on June 21st, at which the Queen was present, the Army Veterinary Department was represented by the Principal Veterinary-Surgeon, and Inspecting Veterinary-Surgeons Evans, Lambert, and Walters, to whom places were allotted.

Notes and News.

OLD CURES FOR HYDROPHOBIA.—Strangely fanciful and astonishingly ignorant were the prescriptions for most diseases in times of old. M. Pasteur's experiments in dealing with Hydrophobia sends us back to the old remedies, and these were some of them. The dried liver of a boar drunk in wine was esteemed very efficacious. Hyena's liver was also strongly recommended; but a still more sovereign remedy was the liver of a young puppy. The fat of a seal, mixed with the marrow of an hyena, was prescribed, both for outward and inward application. A field-mouse's tail, burned and beaten into dust, was sometimes applied to the wound; but not with any hope if the tail had not been cut off while the mouse was alive. Unicorn's horn—that precious medicine so highly esteemed as an antidote to all poisons—was occasionally used in cases of Hydrophobia; but the difficulty here was in getting the genuine article, there were so many imitations. Sheep's wool undressed, applied to the wound, was supposed by some to work a perfect cure in seven days. The gall of a bear, steeped in water, was reckoned an excellent remedy; but the patient had to fast three days before taking this savoury physic, which was a great drawback. Other remedies were a snake's skin and a male crab pounded together; young swallows burned and beaten to powder; the hairs of a dog laid upon the wound; the roots of dog-roses; the tongue of a ram, with salt; and green figs soaked in vinegar. Amulets—an easy kind of medicine—were frequently recommended. Patients were advised to wear an hyena's skin, or a young wolf's skin, in which the root of gentian had been enclosed; or sometimes a dog's tooth was fastened in a leaf and tied round the patient's arm. A tale is told of some priests, belonging to a certain church of St. Lambert, in a city of Picardy, who undertook to cure Hydrophobia in a very special manner. When a sufferer was brought to them, they cut a cross in his forehead; then they burnt a piece of the saint's robe, laid it upon the part that had been bitten, sewed up the wound, and applied a plaster. After this operation the patient was put on a diet of hard-boiled eggs and water. If he failed to recover within the space of forty days, he was regarded as incorrigible; they bound him hand and foot in his bed, and smothered him. One heroic remedy, mentioned by Pliny, was to salt the flesh of a mad dog and eat it. The head of a dog powdered was also considered efficacious. Cheese, made of goat's milk, mixed with wild marjoram, was sometimes prescribed. A common practice was to plunge a patient into cold water—sea-water, if possible. The case is related of a girl who, suffering from the fearful malady, was repeatedly plunged into a tub of water in which a bushel of salt had been dissolved until she became insensible; then she was left in the tub, propped against the sides. At length she regained her senses, and found herself not only able to look at the water, but even to taste it. These are some of the old cures for Hydrophobia; but even in those days it was understood that prevention is better than cure, and the old writers lay down directions which, if followed, would enable a man to face the maddest of dogs. "If a man hold the tongue of an hyena in his hand," says Topsel, in his delightful "History of Four-footed Beasts" (first published in 1607), "there is no dog that dareth to seize upon him." From the same authority we learn that all living creatures will fly from a man who is thoroughly anointed with the fat of a lion. Wolves were supposed to stand in great dread of a lion; and whoever anointed himself with tallow taken from a lion's loins would be able, "by the scent and savour thereof, to drive away from him all wolves, how greedy and ravenous soever they be." There used to be several methods of curing mad dogs. One way was to shut them up, keep them fasting for a day, administer hellebore, and then feed them on bread made of barley-meal. Another way was to put the dog into water, with

his hind-legs touching the ground, and his fore-legs fastened above his head. (Poor wretch!). When he was taken out of the water, his hair was to be shaved off close to the skin. "Then anoint him with oil of beets; and if this do not cure him within seven days, then let him be knocked on the head or hanged out of the way." It was supposed that madness could be produced in a dog by giving him hot wheaten bread dipped in bean-water. Should any person entertain the notion of eating the gall of a mad dog, it may be well to warn him that he runs the risk of dying within seven days: after seven days the danger is over. Should you be bitten by a dog, and desire to ascertain whether you are likely to be afflicted with madness, take some grains of corn, apply them to the bitten part, and then give them to a hen. If the hen dies from the effects of eating the grain, you may be sure that you will have Hydrophobia. The best thing is (say the old writers) to worm your dog when he is young; for a dog that has had the worm removed from his tongue will never go mad. Immediately after the worm has been removed you must rub the dog's tongue with salt and oil. If you do not like this process, the next best thing is to adopt the precautionary measure employed by shepherds in Columella's time. Take your dog's tail and pluck out from it a certain sinew that runs to it from the joints of the backbone. By so doing you will not only secure the animal from all danger of Rabies, but you will greatly improve the appearance of his tail. This operation, however, should be performed before the dog is old.

JUBILEE INSTITUTES FOR ANIMALS.—A gentleman offers £100 for an Institute of Comparative Pathology (without vivisection) to study the diseases of the lower animals and their similarity and communicability to the human subject, £50 for a Horse Institute, £50 for a Dogs' Institute, and £50 for a Cats' Institute, on condition that ten donors of similar amounts be added for the same purposes. Communications may be made to the Hon. Cecilia Sandys, 1A, Wilton Place, S.W.

STATISTICS OF HYDROPHOBIA.—It is officially reported that the total number of persons subjected at the Pasteur Institute in Paris to the Pasteur treatment from the end of October, 1885, to the end of December, 1886, was 2,682. Of this number 2,164 had been bitten by animals known for certain to have been mad at the time of biting, and the remaining 518 by animals suspected to have been mad. Of the 2,164 bitten by animals undoubtedly mad, and treated according to Pasteur's method, twenty-nine persons died, representing a proportionate mortality of 1·34 per cent. Of the 518 bitten by animals presumed to be mad, and subjected to Pasteur's treatment, only two died—*i.e.*, 0·38 per cent. Before the discovery and application of the Pasteur method of treatment the proportion of mortality from that disease among the persons affected by it was at lowest 16 per cent. If, then, the 2,164 persons in the state described had not been treated by the Pasteur method, the cases of mortality among them would have been, not twenty-nine, but 346. That is to say, of the 2,164 persons, 317 owe their present existence to Pasteur's method. Looking next, exclusively to the most dangerous cases, we find that there were forty-eight persons bitten by mad wolves, 186 persons bitten on head or face by animals known to be mad, and twenty-eight bitten on head or face by animals presumed to be mad. Of the forty-eight in question seven died—*i.e.*, a mortality of fourteen per cent. The mortality in similar cases before the Pasteur method was sixty to eighty per cent. Moreover, three of the forty-eight persons had actually broken out in Rabies before the application of the treatment, and their deaths may, therefore, be left out of account, thus reducing the mortality of this class under the Pasteur treatment to eight per cent., as against sixty to eighty per cent. without the Pasteur treatment. Of the 186 above specified, the number of persons who died was nine, or 4 83 per cent., as against eighty-eight per cent. without the Pas-

teur treatment. That is, out of the 186, 163 would have died but for the Pasteur treatment, whereas, with the Pasteur treatment, only nine died. Lastly, of the twenty-eight above specified, only one died—*i.e.*, a mortality of 3·57 per cent. For some months past M. Pasteur has modified his method, and in the most serious cases has applied, not simple, but what he calls intensive, treatment. So that while out of the 136 specially serious cases in which the simple treatment was applied, nine died; in fifty specially serious cases in which intensive treatment was applied, no mortality whatever followed.

Contagious Diseases Among Animals in London.—The report of the Metropolitan Board of Works for 1886 has just been issued, and contains, as usual, important statistics in respect of contagious diseases of animals within the metropolis. From this source we learn that there has been no Foot-and-mouth Disease within the Metropolitan district since February, 1884; no case of Sheep-pox in 1886; and three outbreaks of Sheep-scab in that year. There were in 1886, sixteen outbursts of Swine Fever; the value placed on the 155 diseased animals slaughtered by the Board's direction was £243 7s. 6d., and the compensation awarded was £118 8s. 9d.; the amount of compensation actually paid within the year was £260 13s. 9d., which included £89 for healthy swine (which had been in infected sheds) slaughtered in December, 1885. The number of cases of Glanders and Farcy reported on by the Board's veterinary inspectors in 1886 was 946, an increase of 161 on the number for 1885. Notwithstanding the proceedings from time to time taken by the Board to put a stop to the danger arising from persons taking glandered and farcied horses through the public streets, the practice still continues. During the year ten persons have been summoned—one for sending a farcied horse by railway from Oxford to London, and nine for not having given notice of the outbreak of the disease and for leading diseased horses on the highway. Convictions were obtained in all these cases, and fines and costs were imposed. The number of glandered animals reported in 1883, 1884, and 1885 was 497, 517, and 420, respectively, and of animals suffering from Farcy, 471, 439, and 365. In the year 1886 the numbers have been 504 glandered and 442 farcied. These animals were all slaughtered, with the exception of eight which died, and of thirteen suffering from Farcy, which were placed under medical treatment, and recovered. The carcases were destroyed at one of the places licensed for the purpose. The horse-slaughterers' premises on the north side of the Thames are also visited daily, and the knowledge that visits at uncertain hours are now made to all the knackers' yards will, it is hoped, deter persons from attempting to move horses suffering from Glanders and Farcy. The total number of animals received at the three licensed slaughterers' yards on the north of the Thames was 12,956, and at the three yards on the south, 10,488, and of these about 11,700 and 8,200 respectively were examined by the Board's veterinary inspectors.

Animals in the United States.—According to the abstract prepared by the United States Bureau of Statistics, and recently presented to the House of Representatives at Washington, the number of horses in the United States on January 1st, 1887, was 12,496,744, as against 10,155,400 on January 1st, 1877, showing an increase of 22 per cent.; the number of mules on January 1st, 1887, was 2,117,141, as against 1,443,509 on January 1st, 1877, an increase of 47 per cent.; the number of milk cows on January 1st, 1887, 14,522,083, as against 11,260,800 on January 1st, 1877, an increase of 29 per cent.; the number of oxen and other cattle on January 1st, 1887, 33,511,750, as against 17,956,100 on January 1st, 1877, an increase of 24 per cent.; the number of swine on January 1st, 1887, 44,612,836, as against 28,077,100 on January 1st, 1877, an increase of 59 per cent. The total value of all the live stock in the United States on January 1st, 1887, is estimated at 2,400,586,938 dols., as against 1,268,762,872 on January 1st, 1877, an increase in the value of United States stock of 89 per cent.

Correspondence.

THE CURE OF ROARING BY GALVANISM.

DEAR SIR,—I have only just received your April number, and in reading the editorial on "Roaring in Horses" I thought the following might prove of interest.

At the end of the hunting season of 1885-6, I went to examine a stud of horses, the property of a prominent welter weight of the Quorn Hunt, for the purpose of advising what should be done to one or two of the horses that were or had been lamed; and in passing one horse the owner remarked upon the ill luck he had—in that nearly all his best horses went roarers, and regretting that nothing could be done for them, pointing to this horse in particular as a very valuable young horse that had just started a slight whistler. I asked him to have a saddle put on, and I galloped him and found he made a decided whistle, but only in his slow canter, and when pulled sharp on the curb rein. In conversation afterwards I mentioned that the only thing to cause relief would be the use of the battery, but as it was, as far as my knowledge went, totally untried, it would simply be an experiment. The owner decided to have it tried, and I had the apparatus made, fitted, and for nine months the horse was under the galvanic current twice a day, one hour at a time. I went over several times to try his wind, and fancied there was an improvement. When the gentleman returned from America he also rode him, and was sure of the improvement; and, not to waste your valuable space, he has ridden the horse all the season, and has told me several times that he cannot hear a sound. He is very pleased with the results, and so am I. I feel sure that much may be done to alleviate, if not cure, this prevalent disease; but there is no doubt that it must be taken in time, as I do not think for a minute that any treatment would do good in chronic cases.

Humberton Gate, Leicester. J. G. PARR, V.S.

THERAPEUTICS.

SIR,—Mr. Fred. Smith's article on the above subject seems to have made a great stir among the old school of "drench 'ums." There are probably very few thoughtful veterinary surgeons who have not given the article more consideration than any of the scientific or simply anecdotal cases recorded from time to time in the journals.

It is greatly to be desired, for the benefit of veterinary medicine, that practitioners with opportunity will give us their experience with the drugs mentioned by Mr. Smith.

We have been taught that "Opium is the sheet anchor of the veterinarian," and our thermometers have recorded a falling temperature with aconite in doses which, Mr. Smith informs us, are quite inert. First comes a lament from a country practitioner, whose faith in his former fetishes is shaken; and lastly, a letter from a druggist, making a lot of contradictions without giving any reason for the faith that is in him, and patronising Mr. Smith by affecting to agree with him in some other matters. The gentleman I refer to is Mr. J. Dowling Allman, who would pose as a therapeutist of great weight, for whose opinion the veterinary profession has been waiting with bated breath.

No doubt Mr. Editor gives us some advantages in the admission of papers from "all sorts and conditions of men," instead of acting as do the editors of the *Lancet* in excluding MS. from any but qualified practitioners. There is, however, an evil arising out of this generous laxity, and I called attention to it in 1878, when Mr. Allman's articles appeared in this Journal; they were

but thinly-veiled advertisements of the nostrums of a particular firm of druggists, for which Mr. Allman was the travelling representative.

If publishers are deprived of their legitimate profits it is no reason why we should accept druggists as high therapeutic authorities. Therapeutics is a subject not taught to pharmaceutical graduates, either as applied to men or horses, and associates of the Pharmaceutical Society (whether by registration or examination) are performing their highest and best functions when preparing the agents or dispensing the materials prescribed by practitioners.

As I have not the honour of Mr. Allman's acquaintance, and have never had any connection with him or his firm, I cannot be charged with prejudice in attempting, for the second time, to expose what I deem a flagrant impertinence. Perhaps if I knew him I might recognise a therapeutist indeed, in whom there is no guile. It was my privilege to study with Mr. Fred. Smith at the R.V.C., and many a profitable hour's "grind" we had. His "infinite capacity for taking pains" commends what he writes to all thoughtful readers, and he is not the man to state as a truth anything he has not established by experiment.

I have been for years sceptical as to the anodyne properties of opium, as I failed to produce any "calmative" effect with 10 oz. Tinct. Opii on a horse that would not be clipped. I have used many gallons of Tinct. Opii, and many pounds of the powder, because my forefathers have done so, and my teachers have so taught. There is very little doubt that I represent the average practitioner in this respect. We have no time to prove these things whan once launched upon the business of living by practice, and we cannot thank such men as Fred Smith sufficiently for the painstaking investigations their time affords.

I have tried Ext. Cannabis Ind. in several cases, notably in Colic, Enteritis, and Sympathetic Fever.

In the case of a horse employed in timber-hauling I gave ʒj., and repeated it in two hours.

Within half an hour of the second dose, and by the time the first paper was dissolved, the animal seemed to go to sleep standing, with entire absence of pain, and remained so for twenty hours, when all the symptoms returned, and I repeated the dose with the same effect. The action of the drug in this and other cases is so quick and so *great* that it is quite alarming, and I feared my first two patients would fall down. They both recovered, and I have now a brood mare of my own, with open stifle joint, to which I have given several ounce doses with the most marked and immediate alleviation of pain, and I attribute the success of treatment entirely to the fact that large doses of this drug kept her perfectly quiescent, giving to the limb rest instead of that miserable catching and dangling which characterises such injuries. There is none of the constipation that appears to be the result of opium treatment, or is at any rate commonly associated with it; but there is, if I may so term it, a suspended animation or dreamy condition which I have not seen before, either as a result of disease or the administration of drugs.

The mare before-mentioned appears to be always asleep, but if roused by a few drops of water on the face, or a sudden noise, she will at once commence to feed, and continue to do so for some minutes, relapsing again into the same comatose condition, and aroused again as often as the process is repeated. All the horses I have given Cannabis to have been large ones, and the effect of one-ounce doses is so very great that I imagine we might do with much less, and I hope other experimentalists will give us their advice. We do not want the suggestions of theorists who arrange a posological table for the horse, on the ground that twenty drops of Tinct. Opii will make a man sleep, and therefore fifteen times that quantity will make a horse do so. We have books, and even pharmacopœias, arranged on that basis, and they are defective,

if not absolutely misleading. Unless we accept homœopathy at once, we can only arrive at a rational system of therapeutics by the experimental plan adopted by Mr. Smith. HAROLD LEENEY, M.R.C.V.S.

East Grinstead, Sussex.

FAIR PLAY AND NO FAVOUR.

SIR,—Would you oblige by insertion of the following? A few days ago a local gentleman purchased a horse from me as a four-year-old, subject to veterinary examination. The veterinary surgeon calls him only three years old, yet he has a full mouth of permanent teeth; the corner teeth are not quite fully up, as they were removed three months ago, but even then he had eight permanent teeth and tushes well up, showing a full four-year-old mouth—in fact, by October, to ordinary observation, the mouth will be five-year-old, although not that age until May of next year. What am I to do in this matter, as this is only one of many instances in connection with the same individual, either from want of knowledge, or malice? I can scarcely believe it to be the first, but I think it ought to be stopped in either case, for the credit of the profession. I may just say I have had the same horse examined, and hold a certificate that he is full four years old. JAMES TEENAN.

Sandyford Road Horse Repository, Newcastle-on-Tyne, *June 14th*, 1887.

SOCIAL STATUS AND PROFESSIONAL ETIQUETTE.

SIR,—Newly-fledged veterinarians and juniors in the profession would have us believe that our position is far higher than it was, and that, thanks to them, it is still rapidly improving.

As an old graduate, and a "rolling" one, I have come in contact with more members of the profession than most, and I am quite convinced that outward appearance—elaborate costume, vehicular display, and dogmatic assumption—go far with some to show social importance. Without doubt many succeed by these means who, weighed in a professional scale, would be found lamentably wanting, and who have to learn their business at the expense of their clients. It is not what "a man knows, it is what he wears" that passes muster and brings business.

It may be old-fashioned, but I cannot but believe that our social position is dependent on something more than outside show, or even bounce, and that it will never be what it ought to be when such as those I have just mentioned pose as its successful exponents, or when men of established practice do things that reflect upon either their judgment or their integrity.

Out of many instances, there is one (quite a recent occurrence) that points the moral. The largest dealer in horses that we have in this district, and one who prides himself on keeping quality and being thoroughly straight, a few days ago sold a horse to a local gentleman as being four years old, and subject to veterinary examination. The veterinary surgeon certified it to be only three years old; purchaser declined, owing to the age, and the sale was prevented. I have examined this animal, and find that he has twelve permanent incisors, the corner ones not fully developed, and had evidently been artificially removed; but his tushes were well up. I have certified him to be full four years old, and I have not the least doubt that in the late autumn he might pass for five years old. In this case, either ignorance or animus seriously operated to the prejudice of the vendor, and it is questionable how far such conduct can be carried without coming within the reach of the law. If it is an error of judgment, it is a serious reflection on professional ability; if from animus, it is a social degradation.

I know some of my younger *confrères* who believe only in professional etiquette so long as it brings grist to their mill, and who look upon the

business as a question of £ s. d. only. They make a stepping-stone of anything to augment their professional income, regardless of their own or fellows' honour. An illustration of this recently occurred here in a police case. It was not simply a question on a disputable point, but one in which the reflection was on the character and credit of the individual mainly concerned; and yet, forsooth, two professional juniors stretched a point on a subject on which they, and especially one of them, were by far the least competent of any giving evidence to decide, and this was done to throw a stigma on one of their own profession. It was a dirty piece of business, and because I said so, one of them took it upon himself to say he was insulted, a protest that carried a weight corresponding to his own insignificance.

I could give you a few more illustrations—a good many personal ones—but I refrain, and leave you to judge how far our status is raised by the conduct I have quoted.

W. G. R. A. Cox.

Newcastle-on-Tyne.

EXAMINERS.

Sir,—As Mr. Blakeway in your journal for May has thrown out a suggestion for those who have had personal experience of an *obnoxious examiner* to state "their opinions in print," perhaps you will permit me, as a graduate of 1885, to say a few words on the subject. I do not speak for myself alone (and I can adduce proof of my statements) when I say that Mr. Robinson is really the only Examiner to whom the students object. He has been described in very moderate language, as for sarcasm and impertinence his equal would be hard to find, and I am *sure* he has some reckoning to make with students he has grossly insulted.

I notice Mr. Greaves says at the end of his letter, "How would the student get on if the whole Board of Examiners consisted of such men—men of his nationality?" Does Mr. Greaves mean to infer that all Scotchmen are alike? I must say it is rather humiliating to think that HE (Mr. Robinson) is a Scotchman, and if the contrary could be proved, I am sure most Scotchmen would be glad.

Jas. K. Calderwood.

Clitheroe.

Communications, Books, Journals, etc., Received.

Communications have been received from G. H. Fenton, A.V.D., Kamptee; Professor Axe, London; W. S. Adam, A.V.D., Hosur; J. A. Nunn, A.V.D., Pietermaritzburg; J. K. Calderwood, Clitheroe; J. G. Parr, Humberton Gate; A. Gresswell, Louth; N. Smith, London; R. Spooner Hart, Calcutta; H. Sumner, Liverpool; Professor Limont, Glasgow; W. G. R. A. Cox, Newcastle-on-Tyne; J. Teenon, Newcastle-on-Tyne; W. Hunting, London; C. Cunningham, Slateford.

Books and Pamphlets: *F. M. Bailey* and *P. R. Gordon*, Plants reputed Poisonous and Injurious to Stock; *F. A. Zurn* and *H. Plaut*, Die Schmarotzer auf mid indem Körper unserer Haussäugthiere, etc.; *A. Johne*, Der Trichinenschauer; *A. Watrin*, Le Pied du Cheval et sa Ferrure.

Journals, etc.: *American Veterinary Review; Annales de Médecine Vétérinaire; Recueil de Médecine Vétérinaire; Der Hufschmied; Revue Véterinaire; Lancet; Wochenschrift für Thierheilkunde und Viehzucht; Quarterly Journal of Veterinary Science in India; Journal of Comparative Medicine and Surgery; Medical Review; Echo Vétérinaire; Journal of Agricultural Society of Victoria; Medical Press and Circular; Edinburgh Medical Journal; Mark Lane Express; Journal of Society of Arts; Live Stock Journal; Practitioner; National Live Stock Journal; Repertorium der Thierheilkunde; Animal World; Farm, Field, and Fireside.*

Newspapers: *South Australian Register; South Eastern Gazette; York Herald; Manchester Guardian.*